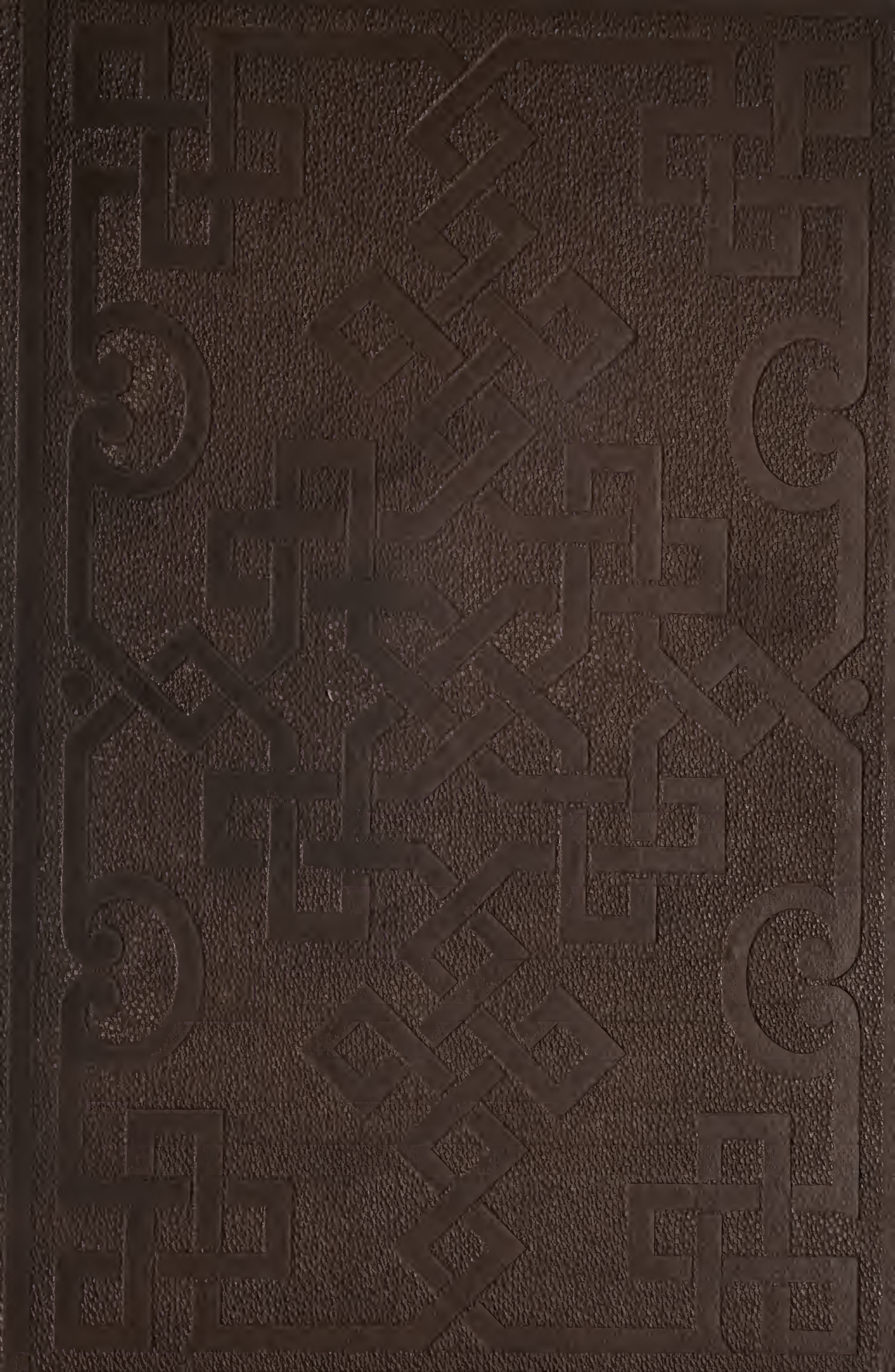

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THE INTERNATIONAL CYCLOPEDIA.

INFANT, in English law, means every male and female under the age of 21. As a general rule, an infant cannot enter into contracts; at all events, they are not binding except at his or her option. But a contract for necessaries is always binding, and an infant may be imprisoned for non-payment of these, like other persons. The father, or, after his death, the mother, of an infant can in general only be bound for an infant's debts where some express or implied contract to pay for these can be made out; and the mere fact of the infant living in the same house is not always sufficient to imply liability, though it is generally an element for the jury. If an infant enter into trade, he is nevertheless only bound by his contracts at his option. But in all cases, if the infant, on coming of age, ratify the contract, then it is binding on him.

An infant in England generally requires the consent of his parent or guardian to marry, though it is more correct to say that if he misrepresent in the preliminary formalities that he is of age, he may be indicted for perjury, but nevertheless the marriage will be good, and cannot be annulled. An infant cannot make a will either of his real or personal estate. He can only sue in a court of law by a near friend or *prochein ami*, who is his father if alive, or any other friend.

In Scotland the law differs in many respects from the law of England on this subject. The term infant is not used at all in a technical sense. All persons, if male, are in legal strictness called pupils till 14, and if female, till 12; and from 14 or 12 to 21, they are technically called *minors*. In general, the contracts of a pupil are absolutely void, and he is under the care of tutors, who are either his parents, or others appointed by the court. A minor, on the other hand, may enter into contracts, but if they are to his lesion or prejudice, he can reduce or set them aside any time within four years after majority. Moreover, if a minor go into trade his contracts bind him, as they do other persons. Further, a minor can make a will or testament, operating on his movable estate, though he cannot alienate his heritable estate in like manner. The four years which are allowed to him after majority to consider whether he will set aside contracts are called *quadriennium utile;* and if he can prove lesion, he is in that period entitled to restitution. In Scotland, also, a minor may marry as freely as if he were a major, and, indeed, he is in general his own master, or *sui juris*, at the age of 14 (as a female is at the age of 12); whereas in England he would be liable to have a guardian appointed to control his person till he attained 21.

INFANT (*ante*), in law, is a person held to be too young to assume the full responsibilities of a man or a woman. By some systems of law the age of maturity is fixed at 25 years, but by the English common law the limit is 21 years for both sexes. The marriage of a boy of 14 years to a girl of 12 is held to be legal, and wills of personal property may be made at the same age. A promise to marry is not binding upon the promiser unless he or she is of full age. It has long been a rule of law that a minor becomes of age on the day next preceding the 21st anniversary of his birth. In some American states women reach the period of legal maturity at 18 years of age. An infant's contract will not be enforced by law; he may fulfill it or not as he pleases; but if it is renewed after maturity it is binding. The renewal may even be inferred from his acts, where no specific promise is shown. At his majority he may repudiate it at will; but if he be in possession of the property of the other contractor, he will be compelled to give it up. He will not be allowed to plead "infancy" as an excuse for retaining property not his own, There is, however, one exception to the voidable nature of an infant's contracts; he may bind himself for "necessaries," such as food, clothing, shelter, medical attendance, and the means of education. The limit of his obligation in this respect will be a question for a court and jury to decide in view of his wealth, social position, or other circumstances. If he voluntarily do anything which the law could compel him to do, the act will be valid and sufficient. In some states of the union he can become an executor at 17 years of age, in others not until 21. He is responsible for wrongs of an actionable nature done to others; but the practical application of this principle involves some very nice discriminations for the court. It has been held, for example, in some cases, that an infant who fraudulently represents himself to be of full

age, and thereby obtains property, is estopped from pleading infancy as a bar to an action for its recovery; but the soundness of this position has been questioned. An infant, if sufficiently intelligent, is held responsible for any crime that he may commit. It is a rule of the criminal law that this responsibility can never arise before he is 7 years of age; after that period, until he is 14, the law presumes nothing for or against him; his capacity to understand the nature and consequences of his act is a matter for investigation. After he is 14 he is presumed to be capable, and the burden of proving his incapacity rests upon himself. Courts generally incline to sentence juvenile criminals to reformatory institutions, with a view to the correction or mitigation of their evil propensities. Courts of equity guard the rights of infants with a jealous care, sometimes, for adequate reasons, taking a child from the custody of the parent and placing it in the care of one better qualified to train and educate it. An infant who is a property-holder is amenable to the law of taxation, and his land is liable to be taken from him under the law of eminent domain as if he were of age.

INFANTÉ (from the Latin *infans*, an infant), the title given in Spain and Portugal to the princes of the royal family, the corresponding title of *Infanta* being given to the princesses. Since the 14th c., however, the heir-apparent to the throne in Spain has been styled the prince of Asturias, and the heir-apparent in Portugal, until the separation of Brazil from the mother-country, bore the title of prince of Brazil. The personal domain of an infante or infanta is called the *infantado*, and this has come to be the name of a district which was made a dukedom in 1475.

INFANTE, José Miguel, 1778–1844; b. in Santiago de Chili; a leader of the revolution of 1810, resulting in the independence of Spanish America; was also a member of the "congress of plenipotentiaries" in 1831, and chief-justice in 1843. He took an active part in the establishment of the common-school system.

INFANTICIDE, the act or practice of murdering infants, which is abhorrent to modern civilization, was common in ancient times, and now prevails among many barbarous nations. It prevailed in Greece and Rome, and (such is the force of custom) found defenders in Plato and Aristotle! The latter, in his *Politics*, says the law should forbid the nurturing of the maimed, and where a check to population is required, abortion should be produced before the quickening of the infant. In Sparta, we are informed that the law directed, when a child was born, the father was to carry it to an appointed place, to be inspected by the elders of the community. If they perceived that its limbs were straight, and its look was wholesome, they returned it to its parents to be educated; otherwise, it was thrown into a deep cavern, at the foot of the mountain Taygetus; and it was said this law had a wholesome effect, for it made women with child very careful as to their eating, drinking, and exercise, and hence they proved excellent nurses. In the other Grecian republics, a similar disregard of the life of sickly infants was shown. With regard to the practice among the Romans, little definite information exists, though learned authors discuss it at great length. It seems certain that it lay with the Roman father to say whether his child should be permitted to live or not. The exposition of infants, indeed, was the rule, rather than the exception, in most countries in old times. Among the Norse, the child's life always hung in the balance till the father handed it to the nurse to be reared; if, on account of its being weak, or a daughter, he disapproved of its living, it was exposed to die by wild beasts or the weather. In modern times, the practice is cruelly common among certain peoples. Child-murder prevails to a great extent throughout the whole of the South Sea islands. Among the Fijians, it is or was a system. A recent authority says that in Vanua Levu, in some parts, "the extent of infanticide reaches nearer two-thirds than a half." Among the Hindus, the practice of destroying children, especially females, prevailed frightfully till it was checked in the time of the marquis of Wellesley's rule. The Rajpúts, it is said, destroy all female children but the first-born—a peculiar custom, due to its being a point of honor with a Rajpút to nearly ruin himself in the marriage feast and portion of his daughter, so that he could not afford to have more than one. The Mohammedans were inclined to the same practice, but effected their object chiefly by means of abortion. In New Holland, the native women think nothing of destroying, by compression, the infant in the womb, to avoid the trouble of rearing it alive. In China, infanticide is supposed to be common, the chief cause being said to be the right of periodically repudiating their wives, which is possessed by Chinamen. Some statistics, published some time ago in a well-known French paper, indicate the fearful extent to which life is lost through this practice prevailing in so vast a population as that of China. In all the cases above cited, it may be assumed there was no feeling of infanticide being wrong or criminal. In some, it was owing to religious feeling of a perverted kind; in some, to the difficulty of living; but in many, as among the Fijians, it would appear that the mother killed her child often from whim, anger, or indolence.

Modern civilization deals very differently with the subject of infanticide, for one of its maxims is that human life, from its first to its last hour, is sacred, and whoever willfully puts an end to it is a murderer, or a criminal of the same category. Instead of encouraging the destruction of life, modern civilization abounds in every kind of machinery for preserving it, however unsuccessful the attempt. The chief cause which now leads to infanticide is that of shame, which, however, operates only in the case

of the child being illegitimate. The parents often incur the risk of committing the crime of murder, to avoid social disgrace. In order, therefore, to appreciate the force of the checks put by the law on the tendency to infanticide, the law of bastardy (q.v.), the practice of instituting foundling hospitals (q.v.), and the kind and degree of punishments attending any attempt, more or less direct, to destroy the child either before or after birth, require to be taken into account.

The criminal law deals with the cognate offenses which make up infanticide in the following manner, whether the child is legitimate or illegitimate: As regards the procuring of abortion, every woman who takes poison or other noxious thing or uses instruments or other means to procure her miscarriage, is guilty of felony, and liable to penal servitude for life, or not less than three years; and so is any person who administers poison or uses instruments upon the woman with such intent. Whoever supplies drugs, poison, or instruments for the same purpose is guilty of a misdemeanor, and liable to penal servitude for three years. The concealment of birth is also made a criminal offense. Whoever, after a child is born, by any secret disposition of the body, endeavors to conceal its birth, is guilty of a misdemeanor, and liable to imprisonment for two years. This is the offense which, perhaps, is most frequently committed, or at least made the subject of prosecution in such cases, as the attempt to establish the larger crime of murder to the satisfaction of a jury, is frequently foiled by the secret sympathy shown towards the mother, who is presumed to have been the victim of seduction, or otherwise wronged. The existence of this offense shows the necessity which every woman likely to become a mother labors under of making public her situation to some extent. As the destruction of children may be effected by the negative fact of not supplying food and clothing, as well as by the positive act of wounding or ill-treating, the refusal or neglect of a parent or other person who is bound by law to supply food and clothing to the child, and neglects to do so, thereby causing its death, amounts either to murder or manslaughter, according to the circumstances. Moreover, the unlawful abandoning or exposure of any child under the age of two years, whereby the life and health of the child are endangered, is a misdemeanor punishable with three years' penal servitude. Where a person is charged with the murder of a very young child, it is essential to prove that the child was in life. The test of this is not that it breathed, or had an independent circulation after it was separated from the mother, but it is enough that the child was fully born; hence, if a man strike a woman with child, so as to cause the death of the child, he is neither guilty of murder nor of manslaughter of the child. The judges of England, in 1848, had to deliberately consider whether though a child was still attached to the navel-string, the killing of it was murder, and they held that it was. In all cases of the murder of infants, the question whether the child was fully born, and so the subject of murder, is generally one of medical jurisprudence, upon which medical skill is needed to throw light, and medical men have certain well-known tests for ascertaining this important fact. The above offenses in reference to infanticide are punished in a similar manner in Scotland.

It has been stated that an inquest is held daily upon the bodies of children destroyed through the design, the neglect, the ignorance, or the mental infirmity of the mothers. Even when the act may fairly be regarded as a crime, its enormity is generally greatly lessened in the eye of the law by the consideration of the physical condition and moral disturbance of the parent.

A further protection was given to infant life by an act of 1872, which obliges those who undertake for hire to nurse infants under the age of one year, to have their house registered, and to keep records of the children they take charge of. They must also give notice to the coroner or procurator-fiscal of such infants' deaths.

INFANTRY, the foot-soldiers of an army. Among semi-barbarous nations, fighting on foot has always been considered less advantageous than fighting on horseback or in chariots; but as war has become a science, the principal strength of armies is found to lie in their infantry. See ARMIES, TACTICS, WAR, etc.

INFANTRY (*ante*). The term infantry was originally applied to a body of men collected by the *infante* of Spain, for the purpose of rescuing his father from the Moors. The attempt being successful, the term was afterwards applied to foot-soldiers in general, as opposed to cavalry. Among the ancient nations of Europe the foot-soldiers constituted the chief strength of the armies. In the best days of the Grecian and Roman states, battles were won mainly by the force and discipline of the phalanges and legions, and the number of the infantry in the field far exceeded that of the cavalry. The cavalry were then, as at present, employed chiefly in protecting the wings of the army and in completing a victory gained by the infantry. The ancient Franks, when they left the forests of Germany, were accustomed to march and fight on foot; and they persevered in this practice even after they had obtained possession of the country of the Gauls, which abounded with horses. But soon after the time of Charlemagne the institutions of chivalry began to be generally adopted in the kingdoms of Europe. These led to frequent exhibitions of martial exercises or horseback in presence of the sovereigns and assembled nobles; and the interest inspired by the achievements of the knights on those occasions was naturally followed by a high regard for that order of men. By degrees the cavalry, which was composed of persons possessing rank and property, and completely armed, acquired the reputation of being the principal arm in

war; and the foot-soldiers, badly armed and disciplined, were held in comparatively small estimation. This continued 400 years, and although war was the principal occupation of mankind, military science fell into neglect. But rulers were forced by the power of feudalism to make an alliance with the despised class of foot-soldiers, and in 1214 we find that some of the German infantry was recognized to be "very good, and trained to fight on the level even against cavalry." The chivalry of France was routed at Courtrai by the infantry during the next century, and the Austrians suffered defeat by the efficient work of the Swiss pike at Morgarten (1315), Sempach (1386), and Nafels (1388). At Cressy and Poictiers (1346–56) the knights of England dismounted to fight beside the successful infantry. The principal weapons of the infantry before the invention of gunpowder were long-bows, halberds, cross-bows, spiked clubs, axes, pikes, straight swords, shields, corselets, mail-jackets, helmets, and partisans. In the 16th c., however, these weapons were replaced by fire-arms, and in the 18th c. the musket was in general use. It became customary during the thirty years' war to form battalions of infantry composed of 500 men, which were massed into dense columns during battle, in spite of the deadly effect of the enemy's artillery and fire-arms. The absurdity of this formation was first exposed by Gustav Adolph, who, recognizing the destructiveness of fire-arms, arranged his battalions with a view to increasing the effectiveness of the fire of his own troops, while avoiding exposure to that from the enemy. His tactics were so successful at Breitenfeld and Lutzen (1631–32) that they were soon afterwards universally adopted. The bayonet came into use in 1670, and the socket-bayonet about 1699. Frederick the great made many improvements till then comparatively unknown. The rapidity with which his infantry troops performed their evolutions during battle contributed largely toward his famous victories in the seven years' war. In fact the Prussian infantry have ever since his time served as models for other European countries. The superiority of this arm consists in the troops being able to act on ground where cavalry cannot, and it is obvious that the latter must be nearly useless in the attack of fortified towns. During the war of the rebellion in this country skirmishing was in vogue in the northern and southern armies. It had been in use during the revolutionary war, and was well suited to the American character. Skirmishing has since been adopted in Prussia, and the skirmish line is recognized as the proper formation in battle to avoid the destructive effect of breech-loaders. The co-operation, however, of cavalry and infantry troops was neglected by American generals. Artillery fire usually opened the battle, and was followed by the advance of the whole line on the run in a final charge. The infantry tactics in general use were those of Casey, founded on those of Scott. Casey's tactics, however, were abandoned for those of Hardee, and in 1867 those of Upton were finally adopted.

Pursuant to the act of congress of Aug. 15, 1876, the army of the United States was reduced to a maximum of 25,000 men, and by general orders issued May 19, 1877, the maximum strength of the infantry was fixed at 9,375. This included 37 enlisted men per company for 250 companies of infantry, and 5 for non-commissioned staff at each of 25 regimental head-quarters of infantry.

The arm that has been adopted for the infantry is the Springfield breech-loading rifle, and the uniform for privates is a single-breasted dark blue basque coat, sky-blue trousers, blue cloth cap with a white pompon; for officers, a double-breasted frock-coat of dark blue cloth, and light blue trousers with black stripes. The overcoat is a dark blue double-breasted surtout. The equipments are a knapsack with great-coat straps, a haversack, a canteen, a cartridge box, and a bayonet scabbard. The pay of the United States infantry is as follows: Col., $3,500 per annum; lieut.col., $3,000; maj., $2,500; capt., $1,800; adj., $1,800; regimental quartermaster, $1,800; first lieut., $1,500; second lieut., $1,400; chaplain, $1,500; first serg., $22 per month; serg., $17; corp., $15; private, $13. An increase of 10 per cent is allowed for every five years' service, provided the total amount of increase does not exceed 40 per cent of the whole pay.

INFANT SCHOOLS. Oberlin (q.v.), the pastor of Waldbach, in France, may be regarded as the founder of infant schools. He appointed females in his own parish to assemble the little children between the ages of two and six, his object being to interest them by conversation, pictures, and maps, and to teach them to read and to sew. The first infant school attempted in this country was in connection with Robert Owen's socialistic establishment in Scotland; it was taught by James Buchanan. In 1819, through the efforts of lord Brougham and lord Lansdowne, an infant school was set on foot in London. One of the first teachers was Wilderspin, whose labors in connection with the extension of infant schools are well known. His methods, based on the Pestalozzian system, were further matured by the home and colonial infant school society, founded in 1836. This society, by training teachers and instituting model infant and juvenile schools, has done more than any other to propagate the infant-school system.

Infant schools are not yet very numerous either n. or s. of the Tweed; but they have certainly been more extensively encouraged in the southern than in the northern half of the kingdom. Two causes have operated to prevent their more rapid increase—the want of means, it being necessary to devote to juvenile schools the money which can be collected for educational objects; and the defects which have hung about the system, and brought it into disrepute. Too much has frequently been attempted in the way of direct

instruction. In Germany, under the name of *Kleinkinderschulen* and *Kindergärten*, infant schools are numerous. In France, under the name of "Asylums," they are very widespread. See KINDERGARTEN.

Infant schools, like other seminaries which are not purely *professional* in their aims, ought to keep in view the threefold nature of the child's mind, and appeal to its different faculties in turn. But while the intellect, the moral nature, and the imagination ought to receive their proper food, it has to be borne in mind that we contradict the laws of nature when we omit an element more powerful and exacting than any of these; we mean the physical, and that love of play, fun, and nonsense which is connected with it, and which is peculiar to infancy, and not unbecoming even the gravity of manhood. By marching, exercises, toys, and, above all, by the judicious use of a large open playground, full provision should be made for the muscular restlessness of children, and for their love of play. The room in which they are collected should be little more than a well-ordered, covered playground. In the playground, whether open or covered, order, obedience, kindness, consideration, civility, cleanliness, good-temper, are to be taught, and the *moral* objects of the infant school attained. Play, and the moral training which may be connected with it, should be the leading ideas of the place, and to these everything else should be subordinated. Next to this, the intellectual nature of the infant has to be considered, its future anticipated, and the elements of reading taught, but with the help of such methods and books as call for the minimum of mental exertion. An infant school which has cultivated the moral nature of its children through games and exercises, and has taught them to read easy monosyllabic sentences by the time they reach the age of six, has accomplished its work well. At the same time, other means of awakening interest and intelligence may be resorted to with advantage, but under this restriction, that if they fail to call forth spontaneous and unconscious attention, either through the want of skill on the part of the mistress to present them in an attractive form, or through some defect in the apparatus at the command of the mistress, they should at once be given up. We refer to songs of a moral or narrative kind—rhymes and nursery jingles—descriptions of objects and pictures by the children under the teacher's guidance (object-lessons)—the concealed purpose being to cultivate the perceptive faculties of form, color, number, size, etc.—and lessons in arithmetic on a ball-frame. Then, again, the teacher may collect the children around her and read to them fairy tales and simple stories of incident and the affections. All this may be and actually is attained; but the qualifications in the teacher for the attainment of them are rarely to be met with. So far as these qualifications are of a moral or imaginative kind, they are natural endowments; but they may receive enlightenment and direction by a judicious system of training. In the first report of the home and colonial school society, it is truly said, "that few situations in life require so much discretion, so much energy, so much tenderness, so much self-control and love, as that of a teacher of babes." Without a consciousness that she possesses these qualifications, especially the last-named, no woman should for a moment contemplate the career of an infant-school mistress.

The question still remains to be considered—whether infant schools are desirable at all, and whether the family hearth, and the fields, or the streets, do not constitute the best, because nature's infant school. The answer given by many would be that, were society in a healthy and normal condition, infant schools are hurtful even at the best, and that, when we bear in mind the chances of their being badly conducted, they may be generally denounced as a public nuisance. But we are *not* in a normal state; and while infant schools proper are, perhaps, superfluous in rural parishes, they are in populous places a boon and a blessing, if not a necessity.

INFANZONA'DO, the name of a district in the Spanish province of Biscay, containing 72 villages. It is divided into the five *merindades* of Arratia, Bedia, Busturia, Marquina, and Uribe.

INFECTION is distinguished from contagion (q.v.) by some medical writers, who would restrict the latter word to the cases in which there must be *contact* of the healthy person with a patient, while they apply the term *infectious* to diseases which can be conveyed by the atmosphere.

INFECTIOUS DISORDERS in cattle have been made the subject of special enactment, in order to protect the public from the calamities arising from the spread of disease in so important an article of food. The contagious diseases (animals) act 32 and 33 Vict. c. 70, authorizes inspectors to be appointed, who have power to enter cow-sheds and stables, and report if disease exists. Sometimes sound cattle require to be slaughtered, in which case half or three-fourths of the value are allowed by the county or borough rate to the owner. Penalties are imposed for turning out diseased cattle on uninclosed lands or in markets, for not purifying sheds, for not disinfecting railway cattle-trucks and steamboats. The owner is bound to give notice to the inspector of any symptoms of disease appearing; and the hay, straw, litter, or dung of infected animals cannot be lawfully removed except for the purpose of being destroyed, and with an inspector's license. The inspectors are appointed by the local authorities, and are removable by the privy council.

INFEFTMENT, or SASINE, a Scotch law-term, used to denote the symbolical giving possession of land, which was the completion of the title, the mere conveyance not

being enough. The instrument of sasine was the notarial instrument embodying the fact of infeftment. But now the necessity of a separate formality is unnecessary, it being sufficient to register a conveyance in the register of sasines in Scotland. In England there is no similar register for deeds, and the title is complete when the conveyance is executed and delivered to the purchaser. In Scotland an *infeftment in security* is a temporary infeftment to secure payment of some debt; and an *infeftment of relief* is a similar security to relieve a cautioner.

INFIDEL, a name generally applied to one who disbelieves the Bible as a divine revelation, but sometimes used also for a skeptic or doubter, and for him who calls himself a freethinker.

***INFINITE.** This word is the source of much controversy and difference of opinion. Some hold that there corresponds to infinity a distinct notion, which we are entitled to entertain and reason about, with the same confidence that we discuss measured intervals, as a yard or mile; while others maintain that the word is a name for a mere negative. Sir W. Hamilton goes so far as to say that "the infinite and the absolute are only the names for two counter-imbecilities of the human mind, transmitted into properties of the nature of things—of two subjective negatives converted into objective affirmatives" (*Discussions*, p. 21). And Mr. J. S. Mill holds a similar view. It had also been maintained by Locke that we have no positive idea of the infinite, that it was only the negative of an end or termination (*Essay on the Understanding*, book ii. chap. 17).

The notion of the infinite has, indeed, been admitted into mathematical reasoning, a circumstance that would seem to imply that we could use it with exactness, and, consequently, it could not be altogether an incompetence or imbecility of the understanding. It appears, however, that mathematicians use the word under peculiar restrictions. They employ it in the two extremes of the infinitely great and the infinitely little. "If we see a conclusion, which we can nearly attain by the use of a large magnitude, more nearly by the use of a larger, and so on without limit, that is to say, as nearly as we please, if we may use a magnitude as large as we please, but which is never absolutely attained by any magnitude however great, then such conclusion may be said, for abbreviation, to be absolutely true when the magnitude is infinite" (*Penny Cyc.*, art. "Infinite"). The very same statement might be made regarding the infinitely small, which is represented in mathematics by the symbol for nothing, although it is not the same as nothing in the strictest sense, namely, the nothing caused by subtracting a quantity from itself, as two from two. It is nothing in this sense, that if added to a finite quantity, as 10, it produces no augmentation that can be made use of; the quantity for all purposes remains the same. The machinery of infinite quantities plays a large part in the operations of the higher mathematics, and is introduced in order to compare two things naturally incommensurate. Thus, in estimating the area of a curved surface, such as a circle, in straight-lined spaces, such as square inches, the difficulty was got over by a sort of fiction, namely, by supposing the circle to be inscribed by a right-lined figure or polygon, of such a very great number of sides that they coincide to all intents and purposes with the curved circumference. The coincidence can never be perfect; but by imagining the sides to be smaller and smaller, and, consequently, more and more numerous, the difference between the polygon and the circle may become less than any assignable quantity, or, as it may be said, infinitely little, in fact, as good as nothing, so that the estimate of the area of the one will stand for the estimate of the area of the other. This device for overcoming the natural incommensurability of straight and curved, and of number and motion, is the real occasion of the mathematical use of the term in question. Nor does it give any foundation for the view that would regard the infinite as a positive conception of the mind which we may apply to objects with a conscious meaning.

This will be more apparent when we attend to the difference between two classes of negative notions. The first class includes those whose negative brings something positive; thus, not hot, brings before us a positive experience, namely, cold; not white, according to what is intended, turns up either black or all other colors, which are to us as much a positive, or real, conception as white. Unjust, or not just, is the name for a distinct class of really existing actions, in contrast to the class named just actions. All notions, such as these, which have for opposites really existing things, are real and genuine notions of the mind; they are conceivable by us to the full extent that we are capable of conceiving anything whatsoever. In fact, the highest test of genuineness, reality, and conceivability, is the existence of a negative, which is also real and positive. Body or matter is a real conception by being opposed to space; the one resists our movements, and the other permits them. Body and space together make the extended universe, the world of externality, or objective existence; which has a distinct meaning by contrast to the inextended mind, or the subject universe. But *existence*, as a whole, is not a real conception, because we have nothing to oppose it to; non-existence is not a real opposite, like space to body, or mind to extension; it is only a formal or verbal opposite, made up by using the word for negation to a case that does not admit of the operation. Non-existence is total annihilation, which, of course, we cannot conceive, as we do cold or black, in their opposition to hot and

white. This being so, we have nothing to affirm respecting existence as expressing the absolute totality of things. See EXTENSION.

Now, to which class of notions does infinite belong? Is it a real opposite to the finite, like cold to heat, or a verbal and formal opposite, like non-existence? Finite means what has a boundary or termination, and applies strictly to body, which is always conceived by us as bounded and terminating in space. The bounded is, in fact, body (or some analogy of body, as when we fancy an inclosure which we do not actually construct); the absence of bounds is free space, which is a real conception. It means scope for movement, freedom from obstruction, and its opposite is some inert matter, standing in our way, to prevent further movement. The unbounded is thus another name for *space;* and when we arrive at a space with no further prospect of obstruction, we may call that a boundless space, but the only meaning we have thereby is a space which no longer contains material obstruction. And we can conceive of no other end of space. Our whole experience furnishes no other contrast except these two, space and body, and where the one ends, the mind must conceive the other. We may conceive the not-extended, it is true, by passing to the subject mind, with its feelings and volitions; but within the sphere of the extended we have no choice but between space and body. We cannot conceive the end of space otherwise than by the beginning of resistance; anything else (not being the subject mind) would be non-existence, or annihilation.

The infinite may thus be the name for an abbreviation in mathematics, but as a real notion of the mind, it merely expresses our inability to pass beyond the region of our experience of matter and space. See *Supp.*, page 881.

INFINITESIMAL CALCULUS. See CALCULUS.

INFINITIVE. See VERB.

INFLAMMATION is the most important of all the morbid processes that fall under the notice of the physician or surgeon. The most obvious symptoms or phenomena of inflammation, when it attacks an external or visible part, are pain, redness, heat, and swelling, or, in the words of Celsus, "*rubor et tumor cum calore et dolore.*" The general characters of the process will be best understood by an assumed case. If a healthy man gets a splinter of wood or any other foreign body imbedded in any fleshy part, he begins to experience pain at the part, and this is soon succeeded by redness of the skin, a firm and extremely tender swelling at and around the spot, and a sense of abnormal heat. These purely local symptoms are succeeded, if the inflammation reach a certain degree of intensity, by a general derangement of the vascular and nervous systems, to which various names, such as constitutional disturbance, symptomatic or inflammatory fever, pyrexia, etc., have been applied. If the foreign body is extracted, the probability is that all these symptoms will gradually abate until the part at length regains its natural appearance and sensations. In this case the inflammation is said to terminate by *resolution*, and this is the most favorable mode of termination. If, however, the cause of irritation is not removed, or if the intensity of the morbid process exceed a certain point, the following phenomena occur: the swelling assumes a more projecting or pointed form, the part becomes softer, and the skin at its center, which is usually the most projecting part, becomes whiter. There is a sensation of throbbing pain, and if the skin be not divided by the knife, it finally breaks, and a yellow, cream-like fluid, known as pus (q.v.), escapes, after which the symptoms readily abate. This termination is known as *suppuration.*

If the original injury was very severe, and the inflammation intense, there may be actual death of the part affected. In that case, the red color of the skin becomes purple or greenish black, the pain ceases, and the part becomes dead and putrid. This is *mortification.* Under favorable circumstances, this dead part, which is called a *slough*, spontaneously separates from the adjacent living parts by a vital process known as *ulceration* (q.v.), and the cavity which is thus formed gradually fills up and heals.

The *pain* may vary from mere discomfort to intense agony. There is usually most pain in those parts in which the tension produced by the swelling is the greatest, as in bone, serous and fibrous membranes, etc. The pain occurring in inflammation is always aggravated by pressure, and by this means the physician can often distinguish between inflammatory and non-inflammatory disorders. The *heat* is seldom so much increased as the sensations of the patient would lead him to believe; it does not rise above the maximum heat of the blood in the interior of the body. This increase of heat depends upon the increased flow of arterial (or highly oxidized) blood to the part. The *redness* depends upon there being more blood than usual in those vessels in the affected part which usually carry red blood; upon the blood containing an increased number of red corpuscles; and upon red blood entering into vessels which, in the normal state, convey colorless fluids only, or which naturally admit so few red corpuscles that they cannot usually be observed. The *swelling* depends in part upon the distension of the blood-vessels, but mainly upon the effusion of various fluids, such as blood, serum, coagulable lymph (or fibrine), and pus into the tissue of the affected part. These fluids are termed the *products* of inflammation. This coagulable lymph frequently becomes organized, and many changes, some of a reparative nature (to which a reference will be presently made), and others of a morbid nature, depend upon its effusion.

Numerous observers have attempted to trace the exact phenomena of inflammation, by microscopic examination of the transparent parts of animals in which the process has been artificially excited. From observation made on the web of the frog's foot and other transparent parts of animals by Wharton Jones, Paget, and others, the following general conclusions may be drawn.

1. The primary effect of a slight stimulus applied to the blood-vessels is a slight and gradual contraction, with a retardation of the current through them.

2. During this contraction, the blood is impeded, or altogether stops. But the vessels soon dilate to a size larger than they originally possessed, and the blood now moves through them more rapidly than in the normal state. The slight stimulus that previously caused the vessels to contract, has now, if re-applied, little or no effect; but on applying a more powerful irritant, such as a minute drop of tincture of capsicum, the phenomena of active congestion or determination of blood become almost instantaneously developed. The vessels become lengthened, dilated, and tortuous, and are distended with blood which contains a great excess of red corpuscles, and is circulated with far more than the normal velocity.

3. But if the injury be still more severe—if, for example, a red-hot needle be inserted—then, in addition to the active congestion described in the preceding paragraph, there is a retardation, and finally a complete stagnation of the blood in the capillaries of the injured spot, while around it the blood moves rapidly through turgid but less full vessels.

The blood obtained by bleeding a patient suffering from inflammation of any important organ, usually presents a peculiar appearance after coagulation. In healthy blood, the clot consists of a uniform admixture of blood corpuscles and coagulated fibrine, and is of a deep red color; but in inflammation, the upper part of the clot consists of a layer of a yellowish or whitish color, to which the term *buffy coat* is applied. This buffy coat is often concave, or hollowed out into a cup-like form, in which case the blood is said to be both buffed and cupped. The cause of this buffy coat is still to some extent an open question; but the phenomenon is clearly due to a subsidence of the blood corpuscles, by which a layer of fibrine, forming the buffy coat, is left at the surface. Another and a more important change in the blood in inflammation is the augmentation of the fibrine, which often rises to two, three, or more times its normal quantity.

Reference has already been made to coagulable lymph or fibrine as one of the products of inflammation. This effusion of coagulable lymph is so important a process both for good and for evil, that a few lines must be devoted to its special consideration.

When coagulable lymph is effused between membranes that are normally in contact (or nearly so) with one another, it often causes them to cohere. In this way we often have adhesions of the adjacent surfaces of serous membranes, such as the pleuræ, the pericardium, and the peritoneum, which materially interfere with the natural free motion of the parts, and occasion various persistent morbid symptoms. In inflammation of the iris, the pupil may be rendered irregular or immovable, or may even be closed up by the effusion of coagulable lymph. In endocarditis, or inflammation of the lining membrane of the heart, coagulable lymph may be deposited in wart-like masses on the valves, and may thus occasion some of the worst forms of cardiac disease. On the other hand, in many cases, the effusion of coagulable lymph has a reparative and conservative influence. It is by the organization of this fluid that the lips of recent wounds are glued together, and that parts recently severed from the body may be sometimes replaced and still live. The success of the Talicotian operation, by which a new nose is engrafted in the position of that which had been lost—of the operation of injecting a stimulating fluid into cystic tumors, etc., with the view of setting up adhesive inflammation—and of various other surgical operations, essentially depends upon the property of organization possessed by this fluid. It is thus, too, that ulcers are gradually filled up till the breach of texture is repaired.

The inflammatory diseases of the most important organs are described under their specific names, and, as a general rule, the termination *itis* is employed to indicate an inflammation. Thus, pleuritis signifies inflammation of the pleura; peritonitis, inflammation of the peritoneum; iritis, inflammation of the iris; etc. Inflammation of the lungs, however, is usually known as pneumonia instead of pneumonitis.

It is unnecessary to enter into the consideration of the treatment of inflammation further than to remark (1) that if possible we must remove its exciting cause, which can seldom be done except when the inflammation is external; and (2) that the patient should be placed on a strictly antiphlogistic regimen (which implies a total abstinence from solid animal food and stimulating drinks, due attention to ventilation, temperature, etc.). Of the direct remedies, the most important (except in persons of weak or broken-down constitutions) is blood-letting, although at present it is somewhat out of fashion. The medicines chiefly employed are purgatives, preparations of mercury, tartar emetic, and opium; while, as external applications, hot fomentations (occasionally cold lotions), and counter-irritation by means of blisters, sinapisms, setons, etc., are often of service.

INFLAMMATION (*ante*). It is held by some authorities that during the first stage, when the capillaries are contracted, the circulation is increased in rapidity, and diminished during dilatation; while others hold that it is slower in the first stage and more

rapid in the second. This difference of opinion arises in consequence of making the observations under different circumstances. If a capillary be enlarged through its whole length the blood will pass through it, for a short time, more rapidly than is natural, and when constricted it will be slower; but if contracted in some places and dilated in others, the blood will necessarily move more slowly in the dilated places and more rapidly in the contracted places, according to physical laws. But after a while an oscillation will take place, and at last there will be stagnation, and distension with colored corpuscles. Liquor sanguinis then exudes through the walls of the vessels, which are sometimes ruptured, allowing the blood corpuscles to escape. The contraction of the capillaries in the first stage and their dilatation in the second is in consequence of the action of involuntary muscular fibers which are placed around the vessels in a transverse direction, like the involuntary muscular fibers of the intestinal canal. This fact explains the power of the emotions over the capillary system in producing pallor and blushing. Sometimes all the symptoms of inflammation are not present, and sometimes they may all be absent, as in the latent pneumonia of the aged. It is necessary, therefore, for the physician to be very guarded in his diagnosis, particularly if the patient be feeble or old. As to the result of an inflammation, it will depend upon whether the exudation live or die. If it live, it undergoes transformations which depend upon the condition of the system. If the system be healthy, the exudation, if it take place upon a serous membrane, will have a tendency to form fibrous tissue, but on mucous membranes or in areolar tissue the tendency is to the formation of pus corpuscles. When the exudation accompanies inflammation produced by wounds the superficial portion is transformed into pus, while the deeper portion is converted into nucleated fibers, which eventually form a cicatrix or scar. Severe inflammation, such as that which takes place after a compound fracture, is attended by several very decided symptoms, such as marked alternation of heat and chilliness; the pulse is very rapid, the skin and mouth are dry, the urine scanty and high-colored. There is great thirst, and unless relief be procured delirium will soon supervene. Constipation is the rule, but, when the bowels are moved, the discharges are very offensive.

According to the manner of its action inflammation is called healthy or unhealthy; and that which is called healthy is really a natural and not a morbid process, the only pathological product being pus, and that of a character called healthy. The color which inflammation produces in a part depends upon the kind of tissue invaded, and upon the intensity of the action. Ligaments and tendons rarely become red. Fibrous membranes, like the sclerotic coat of the eye, assume a lilac color; the mucous membranes at first become scarlet, then darker, and, if the tissue die, black. Inflammation of serous membranes passes from lilac to scarlet, to brown. The kidneys become violet. Inflammation arrests nutrition and consequently diminishes the amount of tissue in a part, which becomes manifest when the swelling subsides.

The treatment of inflammation has been greatly simplified and improved by the discoveries of modern histology and therapeutics. It is local and general, the former consisting in various applications depending on circumstances. Sometimes warm fomentations are desirable, as affording relief to the nerves of the part, and promoting an interchange of material in the stagnated parts. Sometimes the continued application of cold is the best remedy to prevent destructive action. Inflammation is sometimes prevented by bandaging or by the application of adhesive straps, but such an operation requires great caution. The study of pathology and experience in practice has shown the impropriety of employing depleting measures in most of the inflammatory conditions, which usually require measures calculated to increase nutrition. Indeed, it is to be borne in mind constantly that recovery from inflammation consists mainly in regeneration or reproduction of tissue. The old tissue must mainly pass away, and the newly formed can be healthy only when developed under the influence of healthy nervous action. Therefore recovery is gradual and requires the repeated renewal of considerable of the tissue of diseased parts. Tonics are often of more service than depletants, and anodynes are of frequent advantage in allaying irritation. Great attention must be paid to the condition of the blood. This vital fluid is naturally alkaline, but often diminishes in this property during inflammation. The alkalinity should be increased by the administration of alkaline medicines, such as the bicarbonates of soda or potash, or both. Wine is often of advantage; also, a nutritious but bland diet. There are conditions of inflammation, however, when decided antiphlogistic measures are indicated, as in violent attacks of pleurisy in robust persons. In such, sometimes the only means of saving the life of the patient is prompt bleeding, together with the administration of opiates, and sometimes mercurials, in no hesitating and doubting manner. Great attention should be paid to ventilation. The purer the air the more rapid will be the recovery. Frequent bathing, generally with tepid water, and all the well-established hygienic measures suitable to the occasion, should not be neglected.

INFLECTION is a general name used by grammarians for all those changes that words undergo when placed in relation to one another in a sentence. See DECLENSION, CONJUGATION, GENITIVE. Most of these changes occur in the end syllable or syllables of the word; and with regard to these at least, there is every reason to believe that they were originally separate words joined on to the root-words (see LANGUAGE), and that

through the natural processes of phonetic change and decay, the compounds thus formed gradually assumed the forms now known in grammar as cases, numbers, persons, tenses, etc. In some instances the original suffix can be readily recognized, and, by the help of comparative grammar, much has been done in recent times in tracing the more disguised inflections to their source; so that the greater part may be considered as satisfactorily established. Confining our remarks to the Indo-European languages, we may safely assert that the syllables used in forming the cases of nouns and the terminations of verbs are of pronominal origin. Thus, *mi*, *si*, *ti*, as the endings of the three persons of the present singular of the verb, are evidently connected with the personal pronouns *ma*, *tva* (*sva*), *ta;* and the plurals *mas*, *tas*, *nti*, contain the same with an indication of the plural number. The nominative singular of masculines and feminines, ending in *s* (*equu-s*, *ἵππο-ς*, *fini-s*, *πόσι-ς*), contains the personal pronoun of the third person, *ta* (*το*, nom. *sa*, *ὁ*); the plural, *piscēs*, *κόρακες*, is probably only a corruption of the same pronoun put twice (*pisci-sa-sa*—i.e., fish that and that), the doubling of the pronominal element expressing symbolically a plurality of the same thing. In the oblique cases we meet with other pronominal elements, which indicate that a certain thing is placed with regard to the predicate in the three fundamental directions of motion—those of *whither*, *where*, and *whence*. The accusative is the exponent of the direction of an action *towards* some object, and its termination *m*, in the plural *ns* (i.e., *m* with the plural termination *s*), is connected with the pronomen *ama*, yon. I (comp. Lat. *i-s*, *i-d*, *i-bi*) is the pronominal syllable employed for signifying that an action has arrived at a certain goal, and is continuing there, giving the dative and locative cases; while the starting from a certain point is indicated by the pronoun of the third person *ta*, and its equivalent *sa* (that), corrupted to *t* and *s*, the termination of the ablative and genitive cases. The dative and genitive of the plural express the same relations as the singular, though they are less clear as to their origin. If, notwithstanding the identity of terminations, the aggregate of nouns must, by a manifest analogy, be classified into several distinct declensions, this, in most cases, is to be accounted for by the difference of the formation of stems or bases previous to their coming in contact with the affixes. It is natural that the so-called crude forms should undergo a different process of contraction according to the nature of their final vowel. The dative *lupŏ*, from the crude form *lupŏ*, is as much a contraction of *lupo-i*, as is the dative *finî* from *finĭ-i*. Consonantic bases, or of the vocalic, those which end in *u* (*v*), a vowel of a decided consonantic quality, are most apt to preserve the inflections in their unaltered form, being less liable to change on the conflict of congruous or incompatible elements. Accordingly, we find that the third Greek and the third and fourth Latin declensions present a much more normal aspect of the original inflections than the others. This does not preclude the possibility of a peculiar inflection being preserved in one or other declension; for nothing is more certain than that language, at a certain stage of its development, created and applied a great variety of means to the same purpose, and that these became limited only when the rising intellect of the human tribes, and their distribution into larger or smaller political bodies, taught and compelled them to economize their ways of expression.

In the formation of certain tenses of the verb we find a process different from the combination of a nominal or verbal base with a pronominal syllable. The Latin subjunctive of the first conjugation, the future in *bo*, the Greek optative and future, the Latin imperfect, and the perfect ending in *avi*, *ui*, *ivi*, consist of the verbal root with an already inflected form of the verbs *i*, to go, *as* and *fu*, to be. However strange this may appear at first sight, it is nevertheless a fact that, e.g., *εἴην*, I would be (for *ἐσ-ιην*, Scr. *s-yâm*, Lat. *s-iem*), originally meant I go (if I mistake not) in being, I am in doubt of the fact of being; that *ποιή-σεις*, thou wilt do, is literally translated, "thou mayst be doing." The Latin *i-bat* for *i-fuat*, or *i-vit* for *i-fuit*, is still more clearly, "he was in the act of going." That auxiliary verbs sometimes assume the function of inflections is proved by the French future, whose forms like *trouverai*, *finirai*, are easily recognized as compositions of the infinitive with the verb *avoir* (*finir-ai*, I have to finish).

The inflections hitherto described affect the end of words, and possess the character of a composition of a significative word or root with a syllable of local import, or an inflected form of a verb. But language also employs other means of a symbolical nature, either in the middle or the beginning of verbs. with the object of representing the various aspects in which an action can appear. We find that the present tenses generally have longer forms than those of the past. The additions commonly used are long vowels or diphthongs, inserted nasals and semi-vowels, or, lastly, repuplication. It seems that the weight given to the verbal root by these appliances is intended to exhibit the continuance of an action in the present tenses, in contrast with the fleeting or momentary operation of the past. In a similar manner the long vowels peculiar to the subjunctive in Greek (*τύπτετον-τύπτητον*, *τύπτομεν-τύπτωμεν*) convey the idea of doubt or uncertainty, by means of the longer interval required for the pronunciation of the intermediate long vowel, thus expressing the hesitation of the speaker with regard to the reality of his judgment. The reduplication in the perfect, being originally a repetition of the root (*tu-tudi*), is not so much the sign of a past time as the symbol for an action having passed from the stage of incipience into that of completion.

The wear and tear of time exercises its influence as well on the radical part of words as on their inflections. Grammatical terminations of a totally different formation by

corruption become obscured, and identical in shape with others of heterogeneous purport. The Latin *Romae* takes on itself the functions of *Româ-i-s* (gen.), of *Româ-î* (dat.), *Româ-i* (locat.), and *Româ-i-es* (nom. pl.); or *populo* those of *populô-î* (dat.), *populo-d* (abl.), and at a very early age that of *populo-m*. The absence of written standard works of such a national importance as to penetrate into the masses of a people, and to check their inclination towards misapplying or neglecting inflections which in progress of time have lost their inherent meaning, and therefore appear cumbersome, accelerate the change of the inflective system into the analytical. The demand for a precise and, so to speak, material expression of those manifold relations appropriated to inflections in ancient languages, is felt more keenly with the waning distinctness of the latter; and sudden political revolutions, such as the invasion of Italy by Teutonic tribes, or the conquest of England by the Normans, interrupting the influence of the privileged classes of a nation, bring the struggle to an issue, and give the ascendency to the popular movement. Articles, prepositions, pronouns, auxiliary verbs, take in modern languages the place of inflections; and notwithstanding that these are not entirely destroyed, they have a precarious existence, and are in danger of being finally supplanted by the tendency to represent every distinct relation of words to each other by a distinct expression. The application of the *s* as a mark of the possessive case becomes more and more limited in modern English, and the mistaken effort to supersede this relic of Saxon inflection by the substitution of the pronoun *his*, has only been defeated because it proceeded from learned pedants, and not from the people. The termination *nt* as a sign of the plural in French verbs (*aiment, aimaient*), may be called almost a dead letter, only traditionally preserved in spelling. The loss of inflections has deprived modern languages of the wonderful simplicity and power of the ancient tongues, and the periphrastic mode of expression they have adopted prevents them from arranging all the parts of a sentence with the same degree of liberty. On the other hand, they have gained in perspicuity. After all they have only reversed the process of the combination of pronominal and auxiliary words with others; but by placing them in front, the attention of the hearer or reader is called at once to the particular modification of every possible shade of a given thought.

INFLECTION, in optics. See DIFFRACTION.

INFLORESCENCE (Lat. *in*, and *floresco*, to begin to flower), in botany, a term employed to designate the flowers of a plant considered collectively and with reference to the manner in which they are arranged and the succession in which they are developed. The flower-bud being a modified leaf-bud, and the parts of the flower modified leaves, it might be expected that the inflorescence should exhibit a close correspondence with the ramification of the plant, but the modification in the parts immediately concerned in the production of flowers is so great, that this is far from being the case. A most important classification of kinds of inflorescence is into centrifugal and centripetal (q.v.). When the flowering axis produces only a single terminal flower, the inflorescence must be regarded as of the centrifugal kind. The terms used to designate more specifically the different kinds of inflorescence are numerous. The principal of them are explained under separate heads, as CATKIN, CONE, CORYMB, CYME, PANICLE, RACEME, SPIKE, UMBEL, etc. But it is to be regretted that such terms are still used somewhat vaguely or carelessly, even by very eminent botanists, or in such various senses, that the inflorescence of the same plant is often described by one term in one botanical work, and by another term in another. And hence arise confusion and difficulty, not entirely to be ascribed to the endless variety which is exhibited in nature.

INFLUENZA, one of the class of diseases to which the term *zymotic* (q.v.) is now applied, has been long recognized by medical writers, although its name, borrowed from the Italian, is comparatively modern in this country. Cullen called it *catarrhus e contagio,* but although, in most cases, it closely resembles ordinary catarrh, it presents certain points of difference from that disease. In addition to the ordinary symptoms of catarrh, there is a sudden, early, and very striking debility and depression of spirits. This early debility is one of the most marked and characteristic signs of influenza. The mucous membranes (especially the pulmonary membrane) are much affected. The tongue is white and creamy, the sense of taste is lost, there is no appetite, the pulse is soft and weak, the skin, although at first hot and dry, soon becomes moist, and the patient complains of pains and soreness in various parts of the body.

In simple, uncomplicated cases, convalescence supervenes in the course of a week or sooner, but influenza is very frequently conjoined with bronchitis or pneumonia, in which case it is much more persistent and dangerous.

Influenza affords an excellent example of an epidemic disease, a whole community being often attacked in the course of a few hours. From this it may be inferred that the occurrence of this disease is connected with some particular condition of the atmosphere, but what that condition is, is not known. Not unfrequently, influenza follows close upon a sudden thaw; sometimes it is preceded by thick, ill-smelling fogs. One hypothesis refers the complaint to some change in the electrical state of the air; and one of the latest and most probable conjectures regarding its exciting cause is that of Schönbein, who refers it to the presence of an excess of ozone (q.v.) in the atmosphere. Like cholera, influenza generally follows a westerly direction, or one from the s.e. towards

the n.w., and its course seems to be altogether independent of currents of air, as it frequently travels against the prevailing wind.

The most important point in the treatment of influenza is *not* to bleed the patient, or in any way to depress his vital powers. He should be kept in bed; his bowels should be gently opened; his skin slightly acted upon, if dry; and, if the cough be troublesome, a mustard-poultice should be applied to the chest, and an expectorant mixture prescribed. In persons of weak or broken-down constitutions, ammonia, beef-tea, and wine and water must be given from the outset. The debility that often remains for a considerable period after the establishment of convalescence, is best met by the preparations of iron and quinine.

Few diseases increase the death-rate to such an extent as influenza, more, however, in consequence of the great number of persons who are attacked in a severe epidemic, than in consequence of its danger in individual cases.

INFORMA PAUPERIS, a term used when a person is allowed to sue as a pauper—i.e., by getting leave to dispense with paying the fees of court and other costs.

INFORMATION, in English law, is used in several senses. In criminal law, an information filed by the attorney-general or master of the crown office is a substitute for an ordinary indictment, and is resorted to only in cases of such misdemeanors as tend to disturb the peace or the government—for example, as libels on judges, magistrates, or public officers, bribery at elections, etc. This information is usually called a criminal or an *ex officio* information, and the defendant is put on his trial in the same way as under an indictment. There are other informations, such as those called *quo warranto*, to test the validity of an election or appointment to a public office, etc. An information by the attorney-general in chancery is a suit on behalf of the crown or government as to any misapplication of a public charity, or on behalf of an idiot's or lunatic's property. The term is also commonly used to denote the written statement often but not invariably made on oath before a justice of the peace, previous to the issuing of a summons or complaint against a person charged either with a crime or an offense punishable summarily. There are also informations in the court of exchequer to recover penalties for breach of the revenue laws. The term is not now used technically in Scotland, except in cases of difficulty, when the court of justiciary orders informations—i.e., written arguments—on both sides.

INFORMATION (*ante*), in law. In the U. S. courts actions for minor offenses such as attempts to evade the revenue laws, etc., sometimes proceed upon information; but no capital or infamous offense can be prosecuted otherwise than by indictment. In several of the states all offenses which are misdemeanors may be prosecuted upon information, but in the case of felonies indictment is necessary. In Pennsylvania and some other states it is optional to proceed by either method. Information is often the form of proceeding in civil cases. By this process a person filling a civil office may be brought into court to show by what authority he assumes to exercise the functions thereof, with a view to his displacement in case it can be shown that his authority is insufficient, and that the office belongs to another. If an unincorporated association assumes corporate powers, it may be ousted by this process, while a legal corporation may be thus arraigned for a violation of its charter or any infraction of law.

INFORM'ER, in English law, the person who sues for a penalty under some statute. In many statutes which define offenses—not criminal but savoring of criminality—encouragement is often given to strangers to come forward and prosecute the offense, by giving them power to sue for the penalty for their own benefit in whole or in part. This practice has been much resorted to in modern statutes on most subjects. In England, when the informer sues in such an action, it is called a penal or *qui tam* action; but, in general, the penalty is now recoverable before justices of the peace in a summary way. In suits in chancery, which require to proceed in the name of the attorney-general, the informer is called a relator. In Scotland, an informer is the party who sets the lord-advocate in motion in criminal prosecutions; and the lord-advocate is bound to give up the name of the informer, who is liable in case of malicious prosecutions. See QUEEN'S EVIDENCE.

INFUSIONS, or INFUSA. These terms are applied in pharmacy to aqueous solutions of vegetable substances obtained without the aid of boiling. They are usually prepared by digesting in soft water (which may be either hot or cold, according to circumstances) the sliced or powdered substance in an earthenware vessel fitted with a cover. Cold water is preferable when the active principle is very volatile, or when it is expedient to avoid the solution of some ingredient in the vegetable which is soluble in hot, but not in cold water. For example, in preparing the infusion of calumba, cold water is preferable, because it takes up the bitter principle (which is the essential ingredient), and leaves the starch matter undissolved. In most cases, however, boiling water is employed. Infusions are preferred to decoctions when the active principle volatilizes at a boiling heat, as in the case of essential oils; or when ebullition readily induces some chemical change, as in the case of senna (q.v.).

Infusions may also be prepared by percolation (q.v.), a process which is extensively employed in the preparation of tinctures. When thus prepared, they are less liable to decay than when prepared on the old system.

INFRALAPSARIANS, or SUBLAPSARIANS, in ecclesiastical history are those who hold that God, for his own glory, permitted the fall of man without positively fore-ordaining it. According to this view God determined to create the world, to permit the fall of man, and from the mass of fallen men elect some to eternal life and leave the residue to suffer the just punishment of their sins. Opposed to these are the Supralapsarians who hold that the fall of Adam, with all its evil consequences, was predetermined from eternity, that election and reprobation precede the purpose to create and permit the fall. According to this view, God, to manifest his grace and justice, creates some to be saved and others to be lost. The majority of the members of the synod of Dort, composed of delegates from all the reformed churches on the continent and in Great Britain, and of the Westminster assembly, were Infralapsarians. Such was Augustine, and such have been those who adopt his system of doctrine. See SUBLAPSARIANS.

INFUSO'RIA, a class of the sub-kingdom of animals called protozoa (q.v.). The term, originally almost synonymous with animalcules (q.v.), is now very much restricted in its signification. It was first used by Otto Friederich Müller, and was adopted by Cuvier, who made the infusoria the last class of *radiata* (q v.). But their radiated structure is by no means established. No distinct trace of nervous matter has been found.—After Müller (1773–86), the next to devote himself to the special study of the infusoria was Ehrenberg, the publication of whose work on them (1837) was the commencement of a new era in the history of this branch of zoology, which has since been prosecuted with great industry by Dujardin, Stein, Lachmann and Claparède, Cóhn, Lieberkühn, Rymer Jones, and others. Many of the organisms included by Ehrenberg, as by previous naturalists, among infusoria, are now generally regarded as vegetable (see DESMIDEÆ and DIATOMACEÆ); whilst others, as the *cercariæ* (q.v.), have been discovered to be immature states of entozoa. The *rotifera* (q.v.) are now also, by very general consent, widely separated from the *polygastrica* of Ehrenberg, for which alone the term infusoria, although not unobjectionable (see ANIMALCULE), is retained; the term *polygastrica* (Gr. many-stomached) being rejected, because it expresses a view of the structure of these creatures which is generally deemed erroneous. Agassiz has gone the length of proclaiming an opinion, not received by other naturalists, that the infusoria are all immature or larval worms. But of the forms at present known, it is at all events probable that many are those of immature creatures; it is certain that some species assume very different forms at different stages of their existence; and the whole life-history of no one species is fully known.

Some of the infusoria are large enough to be individually visible to the naked eye, but most of them are altogether microscopic. Their bodies are composed of *sarcode*, a glutinous diaphanous substance, of which the outer layer sometimes forms a more or less resisting integument. The body has some well-defined form, of which the varieties are very great in different species. Many are furnished with *cilia*, the motion of which carries them with great rapidity through the fluid in which they live, and by means of which also currents are created in the fluid to bring food to the mouth. The mouth is very generally surrounded or largely provided with cilia. Whether these organs are under the control of will, or maintain their motion without will or even consciousness on the part of the creature, like the cilia of the epithelium in higher animals, is not determined. There is an analogy in favor of the latter opinion, and many appearances —which, however, the phenomena of zoospores, etc., teach us to regard as possibly deceptive—in favor of the latter. Some infusoria, instead of cilia, have a few slender filaments, which they agitate with an undulatory movement; others move by contractions and extensions of their bodies. Some have stiff bristle-like organs, which they use as feet for crawling on the surfaces of other bodies; and some have hooks, by which they attach themselves to foreign bodies.

All infusoria have a distinct mouth, and many have also an anal opening, sometimes near the mouth, sometimes at the opposite extremity of the body. Between these, Ehrenberg imagined that he could trace an intestine, straight in some, variously bent in others, with which along its course many small stomachs are connected; whilst in the infusoria having only one aperture, he supposed all the stomachs to open immediately from it. But other observers have failed to find the canal and stomachs, although Ehrenberg's experiments, by means of fluids colored with indigo and carmine, have been often repeated. And it seems probable that the food taken into the mouth is simply conveyed into the midst of the soft gelatinous substance of the body, being formed into pellets as it passes from the mouth through a kind of gullet in the firmer integument. The food of infusoria consists of organic particles of various kinds, and different species have been remarked to show a preference, like those of higher animals, for particular kinds of food. Many of them feed on microscopic plants and on other infusoria. Their great use in the economy of nature is probably to consume organic particles, the decomposition of which would otherwise be baneful to all life, and the return of which by decomposition to their primitive elements would diminish the fertility and wealth of the world. The numbers of the infusoria are prodigious. They are found in all parts of the world, and both in fresh and salt water, in stagnant ponds and ditches, in mineral and hot springs, and in moist situations. Any infusion or other liquid containing vegetable or animal matter, if left exposed to the atmosphere, is sure

to be full of them. Their multitudes are so great that leagues of the ocean are sometimes tinged by them. Some, which, instead of swimming freely, like most of their class, become surrounded with a gelatinous substance, are found adhering together in masses sometimes 4 or 5 in. in diameter, although the individual animals are so small that a cubic inch of the mass may contain 8,000,000 of them. The infusoria contained in a single cup of putrid water may exceed in number the whole human population of the globe!

The organization of the infusoria is still very imperfectly known. There appears in many of them a cavity not far from the mouth, the *contractile space*—variously regarded as a cavity without proper walls, or as a vesicle—from which branches sometimes radiate through the substance of the body, and which, being capable of contraction and expansion, is regarded by some as the center of a kind of vascular system. It is with considerable probability regarded as furnished with proper walls. There is also, probably in all the infusoria, another organ, evidently of great importance, although its use is still uncertain, called the *nucleus*, which is usually roundish or a little elongated, sometimes much elongated and band-like. It is enveloped in a membrane, and is more compact than the surrounding substance. In the multiplication of these animals by spontaneous division, a fission of the nucleus always takes place. Each of the halves becomes furnished with a complete mouth, set of cilia, and other organs. The division, in the same species, is sometimes longitudinal, sometimes transverse, perhaps alternately longitudinal and transverse. The multiplication of the infusoria in this way is extremely rapid. A *paramecium*, well supplied with food, has been observed to undergo division every 24 hours, from which would result 16,384 individuals in a fortnight, or 268,435,456 in four weeks. Reproduction also takes place by gemmation; buds or gemmules forming on the outer surface of the body, and gradually assuming the shape of the parent animal, although they do not attain to their full size till after separation. More extraordinary is another mode of reproduction by *encysting* or *encapsulation*. The animal contracts, closes its mouth, becomes surrounded by a viscid secretion, and finally by a membrane, becomes attenuated, and dissolves, all but the nucleus, into a mere liquid containing granules, which afterwards form within the cyst a new infusorium, different in form and appearance from that by which the cyst was produced. The metamorphoses of the infusoria have been traced to a certain extent in some kinds, but not fully in any. Whether any truly sexual propagation takes place has not been perfectly ascertained, although the observations of Balbiani have made it extremely probable as to some of them. A reproduction, different from all that has yet been mentioned, has been observed to take place in some, by the formation of internal germs, to which this character has been ascribed, but the subject is still involved in doubt; nor is it improbable that there may be amongst these minute creatures a production of real eggs, which has hitherto eluded observation.

In the integument of some infusoria, very minute fusiform bodies are thickly imbedded, called *trichocysts*, which are capable of throwing out long filaments. Their use is unknown, although they are supposed to be urticating organs. The filaments are thrown out when the animal is subjected to annoyance by the drying up of the liquid in which it lives, or by the application of some irritating liquid.

INFUSORIA, Fossil. See Diatomaceæ.

INGALLS, John James, ll.d. See page 881.

INGALLS, Rufus, b. Maine, 1820; graduated at the U. S. military academy, 1843; joined the army. In 1845 he was transferred to the dragoons, and in 1848 to the quartermaster department with the rank of capt. In 1854 he became col. and assistant quartermaster-general. In 1860 he was ordered from the frontier, where he had long served as quartermaster with his regiment, to Washington, where, at the beginning of the rebellion, 1861, he was appointed chief quartermaster of the volunteers to provide for the supplies of the army of the Potomac and of the army of the James. He discharged his duties with great ability, fidelity, and promptness. Mar. 13, 1865, he was made maj.gen. of volunteers for meritorious services in the rebellion; and in 1867 became quartermaster of the military division of the Atlantic at New York.

INGAÚNI, a tribe dwelling on the mountains and seacoast of Genoa in the 1st and 2d c. b.c. They were active in the wars between the Romans and Ligurians, and were allies of the Carthaginians in the second Punic war. They were regarded as a distinct tribe in the time of Pliny and Strabo, but after the battle with Emilius Paulus, 181 b.c., in which they lost 15,000 men, very little was heard of them. The town Albenga, then called Albium Ingaurium, was their capital.

ING'BERT, or Sanct Ingbert, a t. of Germany, in Bavaria, in the Palatinate, on the Roorbach, noted for its coal, iron, and quicksilver mines, and the manufacture of iron, glass, and chemicals. Pop. about 9,000.

IN'GELOW, Jean, b. England, 1830; published her first volume, *Poems*, in 1863, and gave evidence of original talent. Among the poems in this volume, "Divided," "High Tide on the Coast of Lincolnshire," and the "Songs of Seven," have been very popular. Her subsequent poems have sustained her reputation as a highly gifted poet. She has published also several prose works, as *Studies for Stories; Home Thoughts and Home Scenes; Off the Skelligs*, and others. Her verses are characterized by simplicity

and naturalness. They have had a very large sale in America. She now resides in London. She has also written *Sarah de Berenger*, and *Don John*. Her latest book is *Poems of the Old Days and the New*, 1885.

INGEMANN, Bernhard Severin, one of the most distinguished poets and novelists of Denmark, was b. May 28, 1789, in the island of Falster. His literary career may be divided into three distinct periods. The first of these, extending from 1811 to 1814, embraces his best lyrical productions, viz., the collection of poems entitled *Procne* (1812), and the allegorical epic of *De Sorte Riddere* (1814); while the second, or dramatic, ending in 1822, was marked by the appearance of numerous tragedies, which have maintained their place on the national stage, and among which the best are his *Masaniello; Blanca Rösten i Oerken* (1815); *Hyrden af Tolosa; Reinald; Underbarnet; Loveridderen* (1816); and *Tasso's Befriede* (1819). After this period, Ingemann's writings are characterized either by leaning to historical disquisition, or a strongly religious bias. His admirable epic poem of *Valdemar den Store og Hans Mänd* (1824) was the prelude to the various historical novels in which, taking Walter Scott for his model, he endeavored to portray the social life and habits of his own country in the middle ages. *Valdemar Seier*, the first of the series (1826), and *Erik Menved's Barndom* (1828), which are generally regarded as the best of these productions, may compete favorably with some of the most successful efforts of his great model; while even in the less popular of his historical novels, *Kong Erik og de Fredlose* (1833), and *Prinds Otto og Hans Samtid* (1835), may justly entitle him to rank among the first novelists of his time. The poems of *Dronning Margrete* (1836) and *Holger Danske* (1837), which are based, like his novels, on incidents of Danish national history and tradition, rank among Ingemann's most successful efforts. The religious element in this writer's mind has found expression in various productions of considerable merit—as, for instance, in his collection of anthems and psalms, *Hoejmessepsalmer* (1825), in his rendering of some of the symbolical or traditionary legends of the church in his *Blade af Jerusalem's Skomager's Lommebog* (1833); *Salomon's Ring* (1839); and in his allegorical poem, *Guldæblet* (1856). Ingemann held the chair of æsthetics and Danish literature at the royal academy of Soröe, near Copenhagen. His collective works have been published in 38 vols., 1857, Copenhagen, and the greater number of his prose works and many of his poems, have been translated into various languages. He died 1862.

IN'GENHOUSZ, Jan, 1730–99; b. in Holland; studied and practiced medicine in Holland, but removed to London in 1767. Accident brought him an introduction to the Austrian imperial family, whom he served professionally with such success that he was named by the empress Maria Theresa aulic counselor and physician to the imperial family, with a pension of £600 per annum. He devoted much time and study to general scientific research and experiments in electricity, and in regard to the composition and relation of different gases. It is claimed that he made the first medical use of carbonic acid, and that he invented the plate electrical machine. He was greatly esteemed by the emperor Joseph II., and was consulted by the most distinguished personages in Vienna. Ingenhousz wrote a number of scientific treatises and essays, some of which were published separately, and others in the *Journal de Physique* and other periodicals. He practiced inoculation in small-pox with distinguished success, and gained a widespread reputation for his skill in this direction.

INGERMANNLAND, or Ingria. See St. Petersburg, Government of, *ante*.

INGERSOLL, a t. of Oxford co., Ontario, Canada, on the Thames river, and on the Great Western railroad, 85 m. w.s.w. of Toronto; pop. '81, 4,318. It exports largely grain and lumber, and has several manufactories of machinery, woolen goods, agricultural implements, cheese, and wooden ware; 2 banks, 7 churches, several hotels, and 2 newspapers. It is a place of growing importance.

INGERSOLL, Charles J., an American statesman, was b. in Philadelphia, Oct. 3, 1782. His father, Jared Ingersoll, was an active partisan in the American revolution, and a member of the convention which adopted the federal constitution. Charles J. Ingersoll received a liberal education, which was completed by European travel. In 1801 he produced the tragedy of *Edwy and Elgiva*, and in 1808 a strong political pamphlet in defense of the democratic policy of Mr. Jefferson, and a satirical review of American politics, entitled *Inchiquin's Letters* (1810). He was elected to congress in 1812; and in 1814 he advocated the principle that "free ships make free goods," in a powerful speech. He was for 14 years United States district attorney for Pennsylvania, and in congress from 1839 to 1849. He published two series of *Historical Sketches of the War of* 1812, in 1845 and 1852. A speech in opposition to the Lincoln administration caused his arrest in 1862; but his popularity made it advisable to release him after a brief detention. He died in May, 1862.

INGERSOLL, Charles Roberts, ll.d., b. Conn., 1821. After graduating at Yale college, 1840, and at the Yale law school, 1844, he practiced law in New Haven. He was several times a member of the general assembly, and in 1873, '74, and '75 was elected by the democratic party governor of the state.

INGERSOLL, Jared, ll.d., 1749–1822; b. Conn.; graduated at Yale in 1766, studied law for five years in London, and after spending a year and a half in Paris, settled in Philadelphia, where he became prominent as a lawyer. In 1780 he was a mem-

ber of congress, and in 1787 represented Pennsylvania in the convention which framed the constitution of the United States. He was also attorney-general of the state, and at the time of his death was presiding judge of the district court of Philadelphia county.

INGERSOLL, Joseph Reed, ll.d., d.c.l.; 1786–1868; son of Jared; b. Philadelphia; graduated at the college of New Jersey in 1804, and for many years practiced law in Philadelphia, where he became eminent in his profession. He was a member of congress 1835–37, and again in 1842–49. In 1850–53 he was minister to England. He was an excellent public speaker. Of his published pamphlets the most important was *Secession a Folly and a Crime,* which appeared at the outbreak of the rebellion.

INGERSOLL, Robert G., b. Dresden, N. Y., 1833; the youngest of five children of a Congregational minister. The family removed west in 1845, and settled in Illinois, and there Robert studied law; was admitted to the bar, and entered into politics as a democrat. In 1857 he removed to Peoria, where he soon became recognized as an able lawyer, chiefly employed in railroad litigation. In 1860 he was nominated for congress, but was defeated. In 1862 he entered the war as col. of the 11th Illinois cavalry, and was taken prisoner, but exchanged. He returned to citizenship a republican in politics, and was appointed by gov. Oglesby attorney-general of Illinois in 1868. In 1876, at the republican presidential convention at Cincinnati, he electrified the audience, and, through them and by means of the press and the telegraph, impressed the entire country with his fervid and vigorous speech in favor of James G. Blaine. From this time col. Ingersoll was recognized as one of the foremost natural orators of the country. He soon after entered the lecture field, where the matter as well as the manner of his discourse excited public attention. He developed the views of a pronounced opponent to Christianity as a system; and, adopting religious topics as his subjects, attacked the inspired character of the Bible, the personal nature of the Deity, the existence of a hell, with all the force of which he was capable, and with the advantage of rhetorical powers scarcely equaled. There have been few instances of the exercise of freedom of speech in religious matters which could be compared to that of col. Ingersoll. Yet, despite his recognized ability as a dialectician, and his surprising and persuasive gifts of oratory, there has been no evidence that his influence as a controvertist or a skeptic has extended beyond the immediate period of his address. Col. Ingersoll married Miss Eva Parker in 1862, and has two daughters. He has been president of several railroad companies; but, since devoting himself to public lecturing, has resided in Washington.

INGHAM, a co. of Michigan; 576 sq.m.; pop. '80, 33,676. The surface is nearly level; the soil fertile, and coal and iron ore are found. The staple products are grain, maize, oats, wool, hay, and cattle. The chief articles of manufacture in numerous factories are carriages, machinery, brick, saddlery, doors, sash and blinds, furniture, and woolen goods. There are also flour and saw mills and tanneries. Several railroads traverse the co. and center at Lansing. Cap., Mason.

INGHAM, Benjamin; 1712–72; b. England. In 1733 he was associated with the two Wesleys, the founders of Methodism, and in 1735 accompanied John Wesley to Georgia. Returning, he visited the Moravians in Germany, and founded in Yorkshire congregations of Moravian Methodists, which in a few years increased to 84. He was afterwards elected a bishop of that church; but finally, with most of the societies which he had formed, joined the Sandemanians.

INGHAM, Charles C.; 1796–1863; b. Ireland; distinguished himself as a painter, gaining at the early age of 21 from the Dublin academy the prize for the "Death of Cleopatra." In 1817 he settled in New York, where he excelled as a portrait-painter, and was one of the founders of the national academy of design, of which he was vice-president 1845–50. Among his admired paintings, besides his portraits, are "The Flower Girl," "Day Dream," "The Laughing Girl," and "White Plume."

IN'GOLSTADT, or Ingoldestadt (anciently *Aureatum,* and by the Latin writers of the 16th c. called *Auripolis* and *Chrysopolis*—i. e., "the golden city"), a t. and fortress of Upper Bavaria; is situated in a fertile district on the left bank of the Danube, which is here crossed by a stone bridge; 46 m. n.n.w. of Munich. It contains three parish churches (two Catholic and one Protestant), a hospital, and a castle. Cloth, playing-cards, and leather are manufactured, and breweries and a trade in corn are carried on; pop. '80, 15,251.

Ingolstadt is an ancient, melancholy-looking town, too large for the number of its inhabitants. A university was founded here in 1472, which reckoned Reuchlin, Aventin, and other eminent scholars among its professors; it was removed, however, to Landshut in 1800, and to Munich about six years after. At this university, in the 16th c., Urb. Rhegius, the poet, known by the name of Dr. Faustus, studied. Ingolstadt was the first German town at which the Jesuits were permitted to establish themselves, and to teach publicly from the university chairs. Loyola gave it the fond title of "his little Benjamin." After the suppression of the order in 1773, Adam Weisshaupt established here the order of the illuminati (q.v.). In 1827 the fortifications of Ingolstadt, which had

been destroyed by the French in 1800, were restored upon a large seale, the two forts on the left bank of the river being especially distinguished for their elegance and strength.

INGRAHAM, Duncan Nathaniel; b. South Carolina, 1802. Entering the U. S. navy as midshipman in 1812, he became capt. in 1855. Commanding the sloop of war *St. Louis* in the Mediterranean in 1853, he interfered with the arrest, by the Austrian consul at Smyrna, of Martin Koszta, a Hungarian, who had declared in New York his intention of becoming an American citizen. The government approved the course of capt. Ingraham, and congress requested the president to present him a medal. He was made in March, 1856, chief of the bureau of ordnance and hydrography, and held the position until Feb. 4, 1861, when he resigned his commission in the navy, and became chief of ordnance, construction, and repair in the confederate navy. He d. 1861.

INGRAHAM, Joseph H., 1809–61; b. Maine. After a brief period in mercantile pursuits, he became a teacher in Washington college, near Natchez, Miss. In 1836 he published *The Southwest by a Yankee*, and afterwards *Lafitte; Burton, or the Sieges; Capt. Kyd; The Dancing Feather*, and some other popular romances. Subsequently he was ordained an Episcopal minister, and took charge of a parish and school at Holly Springs, Miss. His last and most important works were *Prince of the House of David; Pillar of Fire;* and *Throne of David*, a series of works of fiction based upon the Old and New Testament histories, and intended to illustrate the Bible.

INGRAILED'. See Engrailed.

INGRES, Jean Dominique Auguste, an eminent French painter, was b. at Montauban, Sept. 15, 1781, studied under David (q.v.), and subsequently went to Rome. Here he resided for fifteen years, after which he spent four years in Florence, by which time his fame was so well established that he was called to the school of fine arts in Paris as the successor of Denon. In 1834 he succeeded Horace Vernet as director of the academy at Rome, and in 1845 he was made commander of the legion of honor. Among his compatriots his reputation is now firmly established. Ingres occupies a sort of middle place between the classic and romantic schools, but rather inclines to the former. Among his numerous pieces may be mentioned "Raphael et la Fornarina," "Romulus, Vainqueur d'Acron," "Virgile lisant son *Eneïde* à Auguste et à Octavie," "La Mort de Léonard de Vinci," "Le Vœu de Louis XIII.," "L'Apothéose d'Homère," "Stratonice," "Jésus au Milieu des Docteurs," "Molière dans son Cabinet," and "L'Apothéose de Napoléon I.," with a motto flattering the late emperor of the French, *In nepote redivivus.* At the Paris exhibition of 1855 Ingres had a whole salon to himself. In 1862 he was raised to the dignity of senator and made a member of the imperial council of public instruction. He died in 1867.

INGRES, Jean Domenique Auguste [*From Supplement*], one of the most eminent painters of the French school, was b. at Montauban, Sept. 15, 1781. A casual view of a copy of one of Raphael's pictures inspired him (so it is said), at the age of ten, with the ambition to become a painter: he forthwith began to study drawing: and after having been successively the pupil of a M. Roques and of M. Briant, a landscape-painter, he went to Paris in his 17th year, and entered the studio of the great painter David. He remained with David as a pupil for four years. He carried off the second prize for painting at the academy of the fine arts in 1800, and in the following year he took the first—an honor which has scarcely, in any other case, been awarded to so young an artist. The picture which gained for him this high distinction was "The Arrival of the Intercessors at the Tent of Achilles." It is now at the school of fine arts, and unquestionably it compares well with many of the works which have made him famous. In 1802 he exhibited two portraits, which still rank among his finest works of this class; in 1804 he exhibited a portrait of the first consul, and also a portrait of himself. He again painted Napoleon, now become emperor, in 1806, and the picture was bought for the hôpital des invalides. In 1806 he set out for Rome, where he continued to live for many years. He seems to have made a reputation in Italy early, and the commissions he received, including several from the pope, prove that his reputation stood very high. From his countrymen, however, the pictures which he sent to Paris for many years met only with neglect or ridicule. It was at Florence, where he resided from 1820 to 1824, that he painted a picture which at length gained him a party of enthusiastic admirers among the Parisians. The picture was "Le Vœu de Louis XIII." It was exhibited at the Louvre in 1824, and though much decried as well as much admired, it still raised Ingres, previously almost unnoticed, at a bound to the chief place among French idealist painters of that time. He received from Louis XVIII. the cross of the legion of honor; and he was forthwith appointed to succeed baron Denon as professor at the academy of the fine arts.

Now that he had become the acknowledged head and representative of a school of art, it was natural that his work should be subjected to a searching criticism, more eager to detect faults than discover merits. He brought upon himself a perfect tempest of discussion in 1827 by a work called "L'Apothéose d'Homère," which his admirers declared to be a masterpiece; while the party of his detractors—then numerous and influential—condemned it as bad in drawing, as poor in coloring, and especially as being

ungraceful, coarse, and even vulgar in conception. The French critics seem now to be agreed not only that this was Ingres's finest attempt at epic painting, but that it places him at the head of the French school, and on the level of the greatest painters the world has seen. Many foreign judges, however, are disposed to hold that the strictures originally made upon it were to a large extent well founded. The discussion which it originated ranged over all the painter's work; it was renewed year after year, and the bitter expressions of some of his critics made such an impression upon Ingres, that from 1832 to 1834 he exhibited nothing but two portraits, and in the latter year embraced an opportunity which offered of again establishing himself in Italy. He became director of the French academy at Rome, a post which has been held by many distinguished artists, and in which his predecessor was Horace Vernet. This time he remained in Italy for about ten years. During these years he sent many pictures to be exhibited at Paris: these gradually wrought upon the public taste; and when he returned, he found his countrymen unanimous and enthusiastic in admiration of him, and in raptures about his latest composition—"Cherubini [the composer] Inspired by the Muse." Since then it has been treason in Paris to breathe a doubt about the greatness of Ingres. The state ratified the decision of the public by the liberality with which it bestowed its honors upon him. He was made an officer of the legion of honor in 1841, a commander in 1845, and grand officer in 1855; he was named a senator on May 25, 1862; and he was soon after appointed a member of the imperial council of public instruction. He became a member of the institute in 1825. Many of his works are now in public collections. At the Paris exhibition of 1855 a room was set apart for his pictures, and one of two grand medals of honor was awarded to him—Eugene Delacroix getting the other. He continued to exercise his art almost to the close of his life; and whatever may be thought of the success of his higher aims, he showed himself to the last what he had always been, the most painstaking, conscientious, and learned of painters. The Naiad which he painted in 1861 ("La Source"), and which was his solitary contribution to the London exhibition of 1862, is considered the finest of his later works; it was enthusiastically admired, even by those who strongly dissented from the praises lavished by his countrymen upon his more ambitious undertakings. He died, after a short illness, Jan. 14, 1867. During the summer an exhibition of his works took place in Paris, at which almost all his pictures and the cartoons for his works in stained glass and mural paintings were brought together.

"L'Apothéose d'Homère," "Le Martyre de St. Symphonea," "La Naissance de Venus Anadyomène," "La Source," "L'Odalisque," and the portrait of M. Bertin, aîné, may be mentioned as among the most characteristic—they are certainly among the most admired—of the works of Ingres. His admirers—who are at present the whole body of his countrymen—recognize in him, among modern painters, the most faithful and persevering and the most successful student of the traditions of the renaissance; they declare his paintings equal in power and fidelity to the best works of the great masters. On the other hand, it is maintained by his censors or detractors that Ingres was deficient in invention and in refinement; that all the good things in his works have been borrowed from ancient pictures; and that, moreover, he copied badly from his models, and often spoiled what he borrowed by his setting of it. Such censures appear greatly exaggerated; but it may be confidently said that Ingres is at present worshiped by his countrymen with a somewhat blind veneration; and that they would do well to expend upon a few really great works the admiration which they lavish upon everything that proceeded from him.

INGRIA. See St. Petersburg, Government of.

INGROSSING, or Engrossing, a deed means, in law, the writing it out in full and regular form on parchment or paper for signature. The person who engrosses is usually a law-stationer or clerk. In Scotland the corresponding term is "extending a deed," and the name of the person who does so must be named in the testing clause, which is not necessary in England.

INGULPH, abbot of Croyland, long considered the author of the *Historia Monasterii Croylandensis* (History of the Monastery of Croyland or Crowland, in Lincolnshire), is supposed to have been b. in London about 1030 A.D. According to the account of his life in his history, he studied oratory and philosophy at Oxford; became a favorite of Edgitha, the wife of Edward the confessor; visited duke William of Normandy at his own court in 1051; and, after a disastrous pilgrimage to the holy land, entered a Norman monastery. Here he remained till 1076, when he was invited to England by the conqueror, and made abbot of Croyland, where he died Dec. 17, 1109. The *Historia Monasterii Croylandensis* was printed by Savile at London in 1596, and in a more complete edition by Gale at Oxford in 1684. It has been translated into English for Bohn's antiquarian library by Riley. Some writers even of the last century questioned the entire genuineness of the book; but their skepticism did not proceed further than the hypothesis of interpolations by a later writer; but in 1826 the late sir Francis Palgrave, in an article in the *Quarterly Review,* endeavored to prove that the whole so-called history was little better than a novel, and was probably the composition of a monk in

the 13th or 14th century. His conclusions have been, on the whole, almost universally adopted.

INHALATION, in medicine, a term used to signify the breathing into the lungs of vapors or gases for producing anæsthesia, or for more strictly curative purposes. The inhalation may be accomplished in a variety of ways. The ordinary manner of administering chloroform or ether is to fold a napkin in the form of a funnel and moisten the interior with a dram of chloroform or a half ounce of sulphuric ether, and apply it to the nostrils and mouth of the patient, admitting a certain quantity of fresh air at the same time. The napkin may be folded in such a manner as to accomplish this, or it may be occasionally partially removed. The quantity of the anæsthetic may be renewed when necessary. There are various forms of apparatus rendering the operation more certain for those whose experience is not great, and, as a rule, they are to be considered desirable. The inhalation of nitrous oxide gas should always be performed with well-made apparatus, and this substance should be carefully purified before it is taken into the lungs. The steam, or rather the vapor of hot water, is employed in throat diseases, often affording great relief; and medicinal substances, such as iodine, chlorine, and camphor are sometimes used in conjunction, but it is often desirable to use the watery vapor without any combination. A very convenient, and, in the absence of other apparatus, the only available way, is to place a funnel over an open vessel containing hot water, and inhale the hot vapor through the spout. A deep vessel, such as a two quart earthen pitcher, may be used, holding a pint of boiling water—the patient breathing from the open mouth, putting his face close over the vessel, with care to moderate the heat of the contents. The vapor of iodine is often found beneficial in affections of the throat or lungs, and this may be inhaled by using the alcoholic tincture, or the solid substance may be put into a wide-mouth bottle, from which the patient may inhale the vapor, which, if the quantity is sufficient, will be afforded rapidly enough at ordinary temperature. If the quantity used is small, it may be slightly warmed. The vapor of carbolic acid is often beneficial as an inhalant, and may be administered in a similar manner. There are various kinds of apparatus for inhalation, with the common object of introducing vapor to the lungs in the proper strength or temperature, and due admixture of air.

INHAMBAN', or INHAMBÁNA, a Portuguese t. of East Africa, 200 m. n.e. of Delagoa bay, and near the mouth of the Inhamban river ; pop. 6,500. It exports wax, ivory, copal, oilnuts, and india-rubber.

*__INHERITANCE.__ See HEIRS, INTESTACY, WILL, SUCCESSION. See *Supp.*, page 881.

INHIBI'TION, in Scotch law, is a writ which is issued in order to prohibit a person from alienating his heritable estate until the debt of the creditor is paid.

INHIBITION, in physiology. See NERVOUS SYSTEM.

INIA, *Inia Boliviensis*, a cetaceous animal of the family *delphinidæ*, in form resembling a dolphin, with a long and slender snout. It is the only known species of its genus, and is one of the few cetacea which inhabit fresh water. It is found in some of the upper tributaries of the Amazon, and in the lakes near the Cordilleras. It is from 7 to 12 or 14 ft. long. The inia feeds chiefly on fish. It is pursued for the sake of the oil which it yields. It is generally found in little troops of three or four. The females show great affection for their young.

INI'TIALS. Though in general it is usual and regular in all legal deeds and writings for a party to write his full Christian name and surname, yet in many cases, especially in documents of a mercantile nature, signature by initials will bind equally with the full signature.

INJECTIONS. This term is applied in medicine to fluids thrown into the passages or cavities of the body by means of a syringe or elastic bag. The fluids thus injected into the *rectum* or lower bowel are termed clysters (q. v.). The injection of a dilute solution of salt into the veins has been found to be of great service in even advanced cases of Asiatic cholera. The injection of blood into the veins is described in the article TRANSFUSION OF BLOOD.

INJECTOR, GIFFARD'S, is now in general use for feeding water into steam-boilers, particularly locomotive boilers. Feed-pumps are difficult to keep in order when driven at high speed. The very rapid action of the valves severely tries their durability. In the case of locomotives, inconvenience was often occasioned by the fact that their feed-pumps acted only when they were running; and thus, if an engine happened to stand still for any length of time, the water occasionally got too low in the boiler. The injector acts equally well whether the engine is running or at rest.

The diagram fig. 1 will give an idea of the essential parts of the injector. A is the steam-boiler, B being the water-level, CDF a pipe into which steam is admitted: this pipe terminates in a cone DF, which is inclosed in a larger cone HH. In the cone DF,

the pointed plug E can be raised or lowered so as to increase or diminish the areaof the aperture at its lower end F. G is a pipe communicating with the water-cistern, and admitting water into the external cone HH. K is a pipe communicating with the boiler under the water-level. On opening communications between the boiler and this apparatus, it might be expected that steam would rush out at F, and water at K, both currents meeting with great force, and escaping into the atmosphere between the two openings. Paradoxical as it may appear, the outflowing stream of water at K, although it is actually flowing under a greater pressure than the current of steam escaping at F, due to the *head* of water arising from the difference of level between the aperture at K and the water-level at B, is overpowered, and driven back into the boiler; and not only is the outflowing current of steam at F able to drive back the stream of water trying to escape at K, but the torrent of steam drags with it a large quantity of water with which it comes into contact as it is passing through the cone HH. This water finds its way into the cone HH, through the pipe G, from the tender or cistern, and constitutes the feed-water. The steam rushing from the aperture at F will necessarily be condensed by the cold water with which it comes into contact in the cone HH. The explanation offered of the action of this apparatus is as follows. The opening at F, through which the steam escapes, has nearly twice the area of the opening into which the water is to be forced at K. The opening in the cone HH is also larger than the aperture at K, and it appears that the mechanical power contained in the flow of steam from F is, as it were, transformed from a large area to a smaller, with a corresponding increase in its intensity. This diminution of its volume arises from its condensation by the cold water through which it has to rush in the cone HH. We get thus the mechanical power due to a column of large area concentrated into a small area, with a corresponding increase in its velocity, and to this increase of velocity is due the fact that a current issuing at FH will enter at K, in spite of the counter-pressure at K. The injector for feeding boilers is rather an expensive apparatus, in consequence of the number of adjustable parts required to be provided. Variations in the pressure of steam require alterations in the area of the steam-passage, and in the distances between the mouths of the conical openings for the outflow and inflow of steam and water.

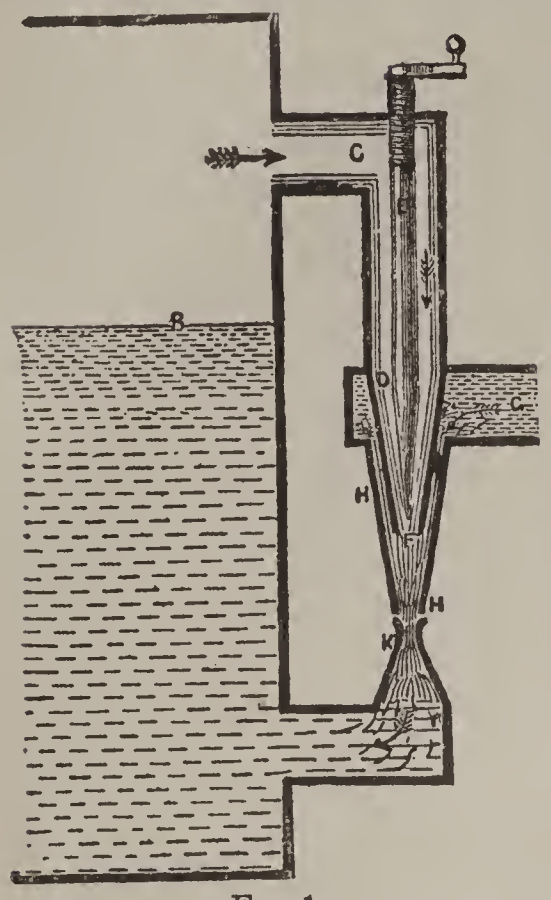


FIG. 1.

Fig. 2 shows in section a simple form of injector for raising water. Steam issuing from the pipe S, into the vessel WR, will draw the water through the pipe T, and force it up through the narrow neck below R, to a height of about one foot for every pound of pressure per square inch. It is doubtful if those injectors can work so economically, as regards expenditure of steam, as ordinary slow-moving pumps; but they possess many conveniences and advantages, which are bringing them into use.

FIG. 2.

INJUNCTION, a writ in English law, by which the chancery division of the high court of justice stops or prevents some inequitable or illegal act being done. The writ is peculiar, in general, to chancery, though to a limited extent it was introduced into common law. If the party disobeys the injunction, he may be attached for contempt of court, and imprisoned till he obeys. If he obeys it, he may apply to have the injunction dissolved. In Scotland a remedy of a similar kind is called an interdict (q.v.).

INJUNCTION (*ante*), in legal practice, a writ of a court with equity jurisdiction, addressed to a party or parties defendant, commanding the performance or non-performance of some specific act. It is either prohibitory or mandatory: in the one case forbidding a certain act, in the other commanding something to be done: for instance, it may either forbid the creation of a threatened nuisance, or enjoin its removal if established. It is borrowed from the Roman law, which, under the name of "interdict," had a very wide application. A court of chancery, having assumed jurisdiction of a case, will, if necessary, enjoin the defendant from taking the same action before a court of law. But for the exercise of this power on the part of a chancellor, conflicts of jurisdiction, detrimental to the public welfare and vexatious to private citizens, might often arise. It is a rule of chancery courts, however, not to grant injunctions where litigants have an available remedy in courts of law. An injunction is either temporary or perpetual. A temporary injunction is issued upon *ex parte* evidence, and is designed to bring both parties into court for an impartial hearing. If it appear that there was

no just warrant for the injunction, it will be dissolved; if it be found to rest upon equitable grounds, it will be made perpetual. Injunctions are often employed to prevent infringements of patents, copyrights, and trade-marks, and in some special cases to restrain breaches of covenants and agreements. If a judgment for debt have been obtained, and the defendants afterwards discover the plaintiff's receipt for the sum laid in the declaration, the latter may be prevented by injunction from levying upon the goods of the former to satisfy such judgment. Where the party enjoined disregards the injunction he will be punished for contempt by the court upon application by the plaintiff.

INK. The most important kinds of ink may be included in the two following heads —*Writing Ink* and *Printing Ink*.

1. *Writing Ink.*—The composition of the ink used by the ancients is not well understood; it is, however, certain that their ink exceeded ours in blackness and durability. Mr. Underwood (who read a paper upon the subject of ink before the society of arts in 1857) thinks that some old ink was merely a carbon pigment, like the Indian ink of the present day, while other kinds were veritable dyes of iron and acids (true chemical compounds), with the addition of a good deal of carbon.

The essential constituents of ordinary black ink are galls, sulphate of iron (popularly known as green vitriol or green copperas), and gum; and the most important point is the regulation of the proportion of the sulphate of iron to the galls. If the former is in excess, the ink, although black at first, soon becomes brown and yellow. The gum is added to retain the coloring matter in suspension, and to prevent the mixture from being too fluid. The following prescription by prof. Brande yields a very good ink: "Boil six ounces of finely bruised Aleppo galls in six pints of water, then add four ounces of clean and well crystallized sulphate of iron, and four ounces of gum-arabic. Keep the whole in a wooden or glass vessel, occasionally shaken. In two months, strain, and pour off the ink into glass bottles." The addition of a little creasote is useful as a check to the formation of mold. Stephens's ink—a blue liquid, which in a few hours after its deposition on paper becomes of an intense black—is one of the most popular of our writing fluids. It consists essentially of gallotannate of iron, *dissolved* in sulphate of indigo, while in ordinary ink the coloring matter is merely *suspended* by means of the gum. Runge, a German chemist, has discovered a simple and cheap black writing fluid, prepared from chromate of potash and a solution of logwood, which possesses the properties of forming no deposit, of adhering strongly to the paper, of being unaffected by exposure to water or acids, and of neither acting on, nor being acted on by steel pens.

Various receipts for *indelible inks* have at different times been published. Dr. Normandy asserts that the ink obtained by the following combination cannot be obliterated or defaced by any known chemical agent: 24 lbs. of Frankfort black (which is supposed to be a charcoal obtained from grape and vine lees, peach kernels, and bone-shavings) must be ground with mucilage, formed by adding 20 lbs. of gum-arabic to 60 galls. of water, and the mixture strained through a coarse flannel; four lbs. of oxalic acid are then added, together with as much decoction of cochineal or sulphate of indigo as will give the required shade.

Red Inks are of two kinds, one variety consisting essentially of the tinctorial matter of Brazil-wood, and the other being prepared from cochineal or carmine. Stephens's red ink, which is one of the best of these preparations, is obtained as follows: "Add to a quantity of common carbonate of potash, soda, or ammonia, twice its weight of crude argol in powder. When the effervescence has ceased, decant or filter the solution from the insoluble matter. To this fluid add by measure half its quantity of oxalate of alumina, prepared by dissolving damp, newly precipitated alumina in as small a quantity as possible of a concentrated solution of oxalic acid. The mixture thus prepared is next colored, when cold, with bruised or powdered cochineal, and after standing for 48 hours, is strained, when it is fit for use." (Muspratt's *Chemistry*, vol. ii. p. 378.)

Blue Inks are now chiefly made either directly or indirectly from Prussian blue. Stephens's unchangeable blue ink is formed by dissolving this salt (which should be first well washed in a dilute mineral acid) in an aqueous solution of oxalic acid. Ink of which Prussian blue is the basis, is unaffected by any of the numerous physical causes which operate injuriously on black ink, unless it be exposed to a strong light, when the iron (which exists as a sesquioxide in Prussian blue) becomes deoxidized, and causes the color of this ink to fade; but on removing the writing from the influence of light, the color is restored.

Purple, green, and yellow inks have been formed by various chemists, but they are not of sufficient importance to claim a notice in this article.

Sympathetic Inks leave no trace of color upon the paper, but when exposed to heat or chemical action of some kind, become more or less distinctly apparent. The following are a few of the principal kinds of this class of compounds. On writing with a solution of sugar (acetate) of lead or of ternitrate of bismuth, and washing the paper with a solution of hydrosulphuric acid (sulphureted hydrogen), the letters come out *black*. On writing with a solution of nitrate of cobalt, and washing the paper with a solution of oxalic acid, the letters come out *blue*. On writing with a solution of subacetate of lead, and washing the paper with a solution of iodide of potassium, the letters come out *yel-*

low; or on writing with a dilute solution of chloride of copper, and gently heating the paper, the letters which were previously invisible assume a beautiful *yellow* tint, which disappears on cooling. On writing with a solution of arsenite of potash, and washing the paper with a solution of nitrate of copper, the letters come out *green.*

2. *Printing Ink* is a soft glossy compound, altogether different in its composition from the inks which have been already described. The following are, according to Mr. Underwood (in the paper already referred to), the necessary conditions of a good printing ink: 1. It must distribute freely; 2. It must have much greater affinity for the paper than for the type; 3. It must dry almost immediately on the paper, but not dry at all on the type or rollers; this is a great desideratum, especially for newspapers; 4. It should be literally proof against the effects of time and chemical reagents, and should never change color. It is prepared by boiling the best linseed oil in an iron pot, kindling and allowing it to burn for a short time; by this operation the oil acquires the necessary drying quality. After being again boiled resin is dissolved in it, in order to communicate body to the fluid, which now somewhat resembles Canadian balsam. The coloring matter—which is lampblack for black ink; carmine, lake, vermilion, etc., for red ink; indigo or Prussian blue for blue ink; lemon and orange chrome (chromate and bichromate of lead), or gamboge, for yellow ink, etc.—is then added to the hot mixture, and the whole is drawn off, and finally ground into a smooth uniform paste.

In lithography a *writing* and a *printing ink* are employed, both of which differ altogether from the compounds already described. The writing ink is composed, according to Muspratt, of the following materials: shellac, soap, white wax, and tallow in certain proportions, to which is added a strong solution of gum-sandarach, and it is colored with lampblack; while the printing ink, which is employed to take impressions on paper from engraved plates, with a view to their transference to the stone, is composed of tallow, wax, soap, shellac, gum-mastic, black pitch, and lampblack.

INK (*ante*). *Ancient Inks.*—The inks of the ancients had nothing in common with ours except the color and the gum employed for obviating too great fluidity. Employing broader-pointed pens than ours they required thicker inks, and though the composition of these inks is not fully understood, yet it is certain that they excelled ours in both richness and stability of color. Ample testimony to these characteristics is borne by existing papyri, whose age is more than 4,000 years, and by the brown leather and white vellum MSS., of an age exceeding 3,000 years, which are now treasured in the museums of Europe. While some of these inks were pigments, like the India and Chinese inks of to-day, others seem to have been actual dyes of iron and acids, with the addition of a good deal of ivory-black, lampblack, soot, or other form of carbon. From Persius and Ausonius, we learn that the Romans made use of the juice of the cuttle-fish, or sepia, which abounded in the Mediterranean. Most elegant manuscripts written in golden and silver inks have come down to our day; and also a few written wholly in red ink, made of vermilion, purple, or cinnabar, though red was more frequently used for headings of books, chapters, and pages. The emperors of Constantinople were wont to sign the acts of their sovereignty with red ink, and their first secretary was guardian of the vase containing the cinnabar or vermilion, which only the emperor might use. Green ink, though rarely found in charters, often occurs in Latin manuscripts, especially those of later years. It was also used by the guardians of the Greek emperors, before their wards obtained their majority. Blue or yellow inks, fortunately, were seldom employed in manuscripts; and in his *Origin and Progress of Writing*, Thomas Astle said that he had neither found nor heard of the use of yellow ink during the past 600 years.

INKBERRY, *Ilex glabra*, a shrub belonging to the holly family (*aquifoliaceæ*). Leaves evergreen, an inch or more long, wedge-lanceolate or oblong, sparingly toothed toward the apex, of a beautiful dark green color, smooth and shining on the upper surface. peduncles, half an inch or more in length, the sterile ones being from 3 to 6 flowered, the fertile ones solitary and producing small black berries. The shrub is from 2 to 4 ft. high and grows upon sandy soils along the coast of the United States from cape Cod to Florida. The leaves and bark have been used as a remedy in intermittent fever, but do not possess much power. Its principal use is for decoration, as a constituent in bouquets. It is brought to New York and Philadelphia in quantities from southern New Jersey.

INKERMANN, a small Tartar village in the Crimea, is situated near the eastern extremity of the harbor of Sevastopol. It is memorable for the battle which took place there, during the Russian war, between an army of Russians 60,000 strong, and detachments of allied forces, consisting of about 14,000 troops actually engaged. At about 6 o'clock on the morning of Nov. 5, 1854, the Russians, who had marched westward from Sevastopol, along the southern shore of the harbor, and whose movements were concealed by the darkness and a thick, drizzling rain, appeared crowding up the slopes of the plateau to the s., on which the allies were posted. Here a handful of men, about 1400 strong, a portion of the "household guards," made a most heroic stand for six consecutive hours against a body of Russians that was probably ten times as numerous. Reinforcements, both English and French, coming up to the rescue, the Russians were finally driven from the field.

INLAND BILL of exchange means a bill of exchange drawn by and upon persons living in the same country. The rules applicable to foreign bills differ in some respects from those applicable to inland bills. By a recent statute, all bills drawn by persons in England on persons in Scotland or Ireland, and *vice versâ*, are to be treated as inland bills.

INLAY'ING is the art of decorating flat surfaces by the insertion of similar or different materials; thus, wood of one color is decorated by inlaying with others of different colors: to this kind of inlaying the French term *marqueterie* is now generally applied. Metal of one kind is inlaid with other kinds, and often very beautiful effects are produced. When steel is inlaid with gold or brass, it is usually called Damascene work. One variety produced in India is called Kuft-gori—in this, the inlaid metal, usually gold, occupies more of the surface than the metal forming the ground. Another beautiful variety of Indian inlaying is called Tutenague or Bedery-work, which consists in making the article to be inlaid, most frequently a hookah bowl, of an alloy consisting of copper one part to pewter four parts. This is hard, but is easily cut; the pattern is then engraved, and little pieces of thin silver cut to the desired forms are dexterously hammered into the spaces thus cut out to receive them. Ivory, pearl, shell, bone, tortoise-shell, are favorite substances for inlaying wood; and stone or marble is inlaid with an immense variety of colored stones. In the art of stone-inlaying, the Florentines have long held the palm; their favorite work is black marble, with inlaid figures of brilliant-colored stones; this work is called *pietra dura*, or Florentine work. Very beautiful work of this kind, excelling the Florentine, is now made in the imperial works at St. Petersburg, where the art has of late been sedulously cultivated by the Russian government. This art was always a favorite one in Delhi and Agra, where some of the most exquisite work is still produced. Usually, in the Indian work, white marble forms the ground-work, and the figures are formed of carnelian, jasper, agate, jade, lapis-lazuli, and other costly hard stones. No stone-inlaying has ever rivaled the inlaid marble walls of the celebrated Tâj Mahal, the tomb of the sultana of shah Jehan, at Agra. The designs are very artistic, the execution almost marvelous, and the harmony of color produced by the different stones employed is most beautiful. Many other materials than those mentioned are used for inlaying; and there is a style of inlaid-work in which small squares of colored stone, glass, or pottery are made to form pictorial and artistic decorations; this is called mosaic-work (q.v.).

INLET, an arm of the sea open only on one side, and stretching into the land, is distinguished from a bay (q.v.) only by its smaller size, as a haven is, again, by still smaller dimensions, distinguished from an inlet. Examples of inlets are seen in the indentations of the w. coast of Norway; as of bays in the deeper and wider indentations of the coast of Italy.

INMAN, Henry, 1801–46; b. N. Y.; an eminent painter. With a preference for the military profession he intended to enter the academy at West Point, but on seeing at Jarvis's studio Wertmüller's picture of Danae his purpose was changed; he became a pupil of Jarvis, and early excelled in miniature painting. He afterwards devoted himself to portraits, and also to landscape, genre, and history. He spent some time in Boston and Philadelphia. His health failing, he visited England in 1844, where he painted portraits of Chalmers, Wordsworth, and Macaulay. On his return he began for the national capitol a series of historical pictures, one of which was "Daniel Boone of Kentucky," but which was unfinished at his death. Among his best works were the portraits of chief-justice Marshall and bishop White, his "Rip Van Winkle awaking from his Dream," "Mumble the Peg," and "Boyhood of Washington." He was made vice-president of the national academy of design. He had a fine literary taste, and wrote several valuable sketches.

INMAN, John O'Brien, son of Henry, an artist. From the west, where he had gained a reputation as a portrait painter, he came to New York and opened a studio. His flower-pieces and genre pictures have been much admired, and found a ready sale. He went to Italy in 1866.

INN (ancient *Œnus*), a river of Germany, the most important Alpine affluent of the Danube, rises in the s. of the Swiss canton of Grisons, at a height of 4,293 ft. above sea-level, and flowing n.e. through that canton forms the valley of the Engadine. It maintains generally a n.e. course to its junction with the Danube. Leaving Switzerland, it enters the Austrian dominions at the village of Finstermünz, flows through the crown-land of Tyrol, and crosses the s.e. angle of Bavaria, after which, forming the boundary between Bavaria and upper Austria, it enters the Danube at Passau, after a course of 285 miles. Its principal affluent is the Salza from the south. It is regularly navigable from the town of Hall, 8 m. below Innsbruck. At its junction with the Danube the Inn is broader than the Danube itself.

INN—INNKEEPER (see Hotel). In point of law, an inn is merely a house of entertainment for travelers, which any person may set up without license like any other trade. It is when excisable liquors are sold that a license is required. Public-houses and ale-houses are, however, synonymous terms with inns, for the innkeeper almost invariably finds it expedient to obtain the necessary license to sell spirits and beer. As to these

licenses, see BEER ACTS and PUBLIC-HOUSES. The rights and duties of innkeepers irrespective of the license will here be noticed. It may be observed, in the first place, that though public-houses are always inns, yet beer-houses are not so, the latter being merely shops for selling beer and a few other liquors, the distinguishing characteristic of the public-house being, that refreshment as well as lodging may be had on the premises by all comers. Taverns are chiefly places for the sale of wines and liquors; victualing-houses, for the sale of victuals; coffee-houses and hotels are also varieties, all of which may or may not be inns, according as they do or do not hold themselves out to give meat, drink, and lodgings to all travelers; and it is not at all necessary that any sign-board be put up to distinguish the inn.

One of the incidents of an innkeeper is that he is bound to open his house to all travelers without distinction, and has no option to refuse such refreshment, shelter, and accommodation as he possesses, provided the person who applies is of the description of a traveler, and able and ready to pay the customary hire, and is not drunk or disorderly, or tainted with infectious disease. He is, of course, bound only to give such accommodation as he has. If the traveler has a horse and luggage, the innkeeper is bound to receive these also, if he has accommodation, provided the traveler himself intends to lodge there as a guest. But the traveler is not entitled to select whatever room he pleases, and if he will not accept such reasonable accommodation as is offered, the innkeeper can order him to leave the house. As some compensation for this compulsory hospitality, the innkeeper is allowed certain privileges; thus, he has a lien on the horse and carriage or goods of the guest for that part of the bill or reckoning applicable to each respectively—i.e., he can keep these until he is paid for the keep, even though they are not the property of the guest. But he cannot detain the person of his guest until payment is made, for, if so, a man might be imprisoned for life without any legal process or adjudication. While, however, an innkeeper has this remedy for his score, he is also liable to great responsibility for the safety of his guests and their goods. By the Roman law, under the edict *nautæ, caupones, stabularii*, he was bound to restore safely whatever goods of his guests were intrusted to him, unless some *damnum fatale*, or some act of God, prevented his doing so. This rule has been adopted by the law of England. Hence, if the guest be robbed of his goods at the inn, the innkeeper is liable, unless the robbery was caused by the guest's servant or companion, or by his own gross negligence, as, for example, by leaving a box containing money in the commercial room, after exposing its contents to the bystanders. So the innkeeper will be excused if the guest took upon himself the charge of his own goods, yet the guest does not take that charge by merely accepting from the landlord the key of the room, though that may be an element in the question. A guest who takes all reasonable precaution—as, for example, locking his room-door—and is yet robbed, has therefore a good claim on the landlord for indemnity; and the landlord will not escape liability by putting up a notice in his rooms that he will not be answerable for such losses, otherwise guests would have no protection, for they are very much at the mercy of the keepers of such houses. It has been attempted to extend the common-law liability of innkeepers for the safety of the goods of their guests to ordinary lodging-house keepers, but the courts have held that an ordinary boarding-house keeper or lodging-house keeper is only responsible for ordinary care, i.e., such care as he takes of his own goods. He must, it is true, be careful in selecting his servants, but he is not bound absolutely to return the goods safe merely because they were in his house along with the lodger.

In Scotland the Roman rule of law as to the responsibility of innkeepers for the safety of the guest's goods has been also adopted, and the other heads of law are substantially the same as in England, except that no indictment would lie in Scotland against an innkeeper for refusing a guest. But the substantial remedies are the same.

INN—INNKEEPER (*ante*). The meaning attached to these terms in this country is almost if not quite identical with that which they bear in England. The duties and responsibilities of innkeepers to their guests are also the same in principle in both countries. The only difference is that in many of the American states an innkeeper who provides a safe for the use of his guests, and notifies them that they should place therein their "moneys, jewels, and ornaments," is not responsible for the loss of such articles if the guest neglect to avail himself of this means of safety. The man who merely takes his meals in a public restaurant attached to an inn is not a guest of the inn itself; his rights are merely those of a casual boarder. An innkeeper may entertain boarders as well as travelers, but his responsibility for the safety of the goods of the former is not the same as that which he assumes in the case of the latter. He is responsible not merely for the traveler's personal baggage, but for all the goods received into his custody; and if they are lost or destroyed by any agency except "an act of God"—by which is meant lightning, storm, earthquake, or anything outside of the ordinary course of events—he must pay for them. Of course if the traveler lose his goods by his own carelessness or that of his servant, the innkeeper is not responsible.

INNATE IDEAS. See COMMON SENSE.

INNER HOUSE, the name given in Scotland to the higher divisions of the court of session (q.v.).

INNER TEMPLE, one of the four inns of court in London having the exclusive privilege of calling persons to the English bar. See INNS OF COURT.

INNES, THOMAS, the author of *A Critical Essay on the Ancient Inhabitants of Scotland,* was the second son of James Innes of Drumgask, in the parish of Aboyne, and co. of Aberdeen. He was b. at Drumgask in the year 1662, and at the age of 15 was sent by his father, a zealous Roman Catholic, to be educated at the university of Paris. He was ordained priest in 1691, and took his degree as master of arts in 1694. He continued in France for some years, discharging his ecclesiastical duties, and assisting his elder brother, Lewis, principal of the Scots college at Paris, in arranging the valuable records which had been deposited there by James Beaton, the last Roman Catholic archbishop of Glasgow. In 1698 Innes returned to Scotland, and officiated as a missionary priest at Inveravon, in the old diocese of Murray. He again went to Paris in 1701, and passed the rest of his life at the Scots college, with the exception of one or more visits which he made to Britain. The great object of his life was to write the true history of Scotland, and to refute the fabulous narratives which had been hitherto generally received by his countrymen. The latter part of his task was fully accomplished by his *Critical Essay,* which was published at London in 1729, in 2 vols. He had prepared himself for the work by a careful study of all the materials which he could find in the libraries of France, and of the books, whether printed or in manuscript, which he was able to consult during his journeys to England and Scotland. In the winter of 1724 he was seen by Wodrow, who had one feeling at least in common with him, and who thus refers to him in his *Analecta:* "There is one father Innes, a priest, brother to father Innes of the Scots college at Paris, who has been in Edinburgh all this winter, and mostly in the advocates' library in the hours when open, looking at books and manuscripts. He is not engaged in politics, so far as can be guessed; and is a monkish, bookish person, who meddles with nothing but literature." In the *Critical Essay,* Innes examined the authorities on which depended what was then generally received as the history of Scotland, and showed how little reliance was to be placed upon them. But not content with overthrowing fable, he pointed out what the true history was, and where it was to be found. The difficulties in the way of this inquiry were very great. Even at the present day, when most of the materials for Scottish history have been printed, it is no easy matter for the student to examine them. In Innes's time they were for the most part in manuscripts, whose very existence was unknown except to a few antiquaries. Every subsequent writer on this portion of Scottish history has admitted the high merit and the practical usefulness of Innes's work. He gave his ready assistance to all who were engaged in pursuits similar to his own, particularly to bishop Keith in his *History of Scotland* and his *Catalogue of Scottish Bishops,* and to Dr. Wilkins in his *Concilia Magnæ Britanniæ et Hiberniæ.* To this last work he also contributed a valuable letter on the ancient form of holding synods in Scotland. Innes died at Paris on Jan. 28, 1744, in the 82d year of his age. The *Critical Essay* has now become a comparatively scarce work, but has never been reprinted. It was intended by its author to be an introduction to a *Civil and Ecclesiastical History of Scotland.* One volume of this *History* was prepared by its author for the press, extending from the introduction of Christianity to the death of St. Columba in 597; and another volume was also left in an incomplete state, bringing down the narrative to the year 821. The whole was printed in one volume by the Spalding club in 1853, under the editorship of Mr. Grub. Imperfect as it is, it forms a valuable addition to our historical literature, being distinguished by the same learning, acuteness, and moderation for which the *Critical Essay* is so remarkable. As has recently been observed, its author loved truth better even than he loved his church. A full biographical notice of Innes, and an account of his various works, will be found in the preface to his *Civil and Ecclesiastical History.*

INNESS, GEORGE, b. N. Y., 1825; a landscape painter. He came to New York at the age of 16 to study engraving, but on account of ill health returned to his parents, then living in Newark, N. J. The next four years he spent at home, painting and sketching; and again coming to New York, he passed a month in Gignoux's studio. He visited Europe twice, spending some time in Italy. After his return he lived in Boston. In 1862 he went to Eagleswood, N. J., where for a time he practiced his art. His work is in the style of Rousseau. Many of his landscapes are greatly admired. Among his best pieces are "The Sign of Promise," "Peace and Plenty," "A Vision of Faith," "Going Out of the Woods," "Passing Storm," "Summer Afternoon," "Twilight," "Sunshine and Shadow," "The Apocalyptic Vision of the New Jerusalem and River of Life," and "Light Triumphant." He now lives in Boston.

INNISCATTERY. See SCATTERY ISLAND.

INNISHERKIN, a small island on the s. coast of Ireland, belonging to the co. of Cork, from the shore of which it is separated by a channel a quarter of a mile in width, is about 1 m. n.e. of Clear island. It is well cultivated, and contains some good slate-quarries. Pop. upwards of 1000.

INNOCENT, the name of 13 popes, the most remarkable of whom are the following: INNOCENT I., a native of Albano, was elected bishop of Rome in 402. Next to the pontificate of Leo the great, that of Innocent I. forms the most important epoch in the

history of the relations of the see of Rome with the other churches, both of the east and of the west. Under him, according to Protestant historians, the system of naming legates to act in the name of the Roman bishop in different portions of the church originated; while Catholics at least admit that it received a fuller organization and development. He was earnest and vigorous in enforcing the celibacy of the clergy. He maintained, with a firm hand, the right of the bishop of Rome to receive and to judge appeals from other churches, and his letters abound with assertions of universal jurisdiction, to which Catholics appeal as evidence of the early exercise of the Roman primacy, and from which dean Milman infers that there had already "dawned upon his mind the conception of Rome's universal ecclesiastical supremacy, dim as yet and shadowy, yet full and comprehensive in its outline" (*Latin Christianity,* i. p. 87). Innocent I. died in 417.

Innocent III. (Lothario Conti), by far the greatest pope of this name, was b. at Anagni in 1161. After a course of much distinction at Paris, Bologna, and Rome, he was made cardinal; and eventually, in 1198, was elected, at the unprecedentedly early age of 37, a successor of pope Celestine III. His pontificate is justly regarded as the culminating point of the temporal as well as the spiritual supremacy of the Roman see; and it is freely avowed by the learned historian of Latin Christianity, that if ever the great idea of a Christian republic, with a pope at its head, was to be realized, "none could bring more lofty or more various qualifications for its accomplishment than Innocent III." (iv. p. 9). Accordingly, under the impulse of his ardent but disinterested zeal for the glory of the church, almost every state and kingdom was brought into subjection. In Italy, during the minority of Frederick II. (son of the emperor Henry VI., king of Italy), who was a ward of Innocent's, the authority of the pope within his own states was fully consolidated, and his influence among the other states of Italy was confirmed and extended. In Germany he adjudicated with authority upon the rival claims of Otho and Philip; and a second time he interposed effectually in behalf of his ward, Frederick II. In France, espousing the cause of the injured Ingerburga, he compelled her unworthy husband, Philip Augustus, to dismiss Agnes de Meranie, whom he had unlawfully married, and to take back Ingerburga. In Spain he exercised a similar authority over the king of Leon, who had married within the prohibited degrees. The history of his conflict with the weak and unprincipled John of England would carry us beyond the space at our disposal. If it exhibits Innocent's character for consistent adherence to principle, and his lofty indifference to the suggestions of expediency, in a less favorable point of view than his other similar contests, it at the same time displays in a stronger light the extent of his pretensions and the completeness of his supremacy. In Norway he exercised the same authority in reference to the usurper Swero. In Aragon he received the fealty of the king Alfonso. Even the king of Armenia, Leo, received his legates, and accepted from them the investiture of his kingdom. And, as if in order that nothing might be wanting to the completeness of his authority throughout the then known world, the Latin conquest of Constantinople, and the establishment of the Latin kingdom of Jerusalem, put an end, at least during his pontificate, to the shadowy pretensions of the eastern rivals of his power, spiritual as well as temporal. Pursuing consistently the great idea which inspired his entire career, his views of the absoluteness of the authority of the church within her own dominion were no less unbending than his notion of the universality of its extent. To him, every offense against religion was a crime against society, and, in his ideal Christian republic, every heresy was a rebellion which it was the duty of the rulers to resist and repress. It was at his call, therefore, that the crusade against the Albigenses was organized and undertaken; and although he can hardly be held responsible for the fearful excesses into which it ran, and although at its close he used all his endeavors to procure the restitution of the lands of the young count of Toulouse, yet it is clear from his letters that he regarded the undertaking itself not merely as lawful, but as a glorious enterprise of religion and piety. As an ecclesiastical administrator, Innocent holds a high place in his order. He was a vigorous guardian of public and private morality, a steady protector of the weak, zealous in the repression of simony and other abuses of the time. He prohibited the arbitrary multiplication of religious orders by private authority, but he lent all the force of his power and influence to the remarkable spiritual movement in which the two great orders, the Franciscan and the Dominican (q.v.), had their origin. It was under him that the celebrated fourth Lateran council was held in 1215. In the following year, he was seized with his fatal illness, and died in July at Perugia, at the early age of 56. His works, consisting principally of letters and sermons, and of a remarkable treatise *On the Misery of the Condition of Man,* were published in two vols. folio (Paris, 1682). It is from these letters and decretals alone that the character of the age, and the true significance of the church-policy of this extraordinary man, can be fully understood; and it is only from a careful study of them that the nature of his views and objects can be realized in their integrity. However earnestly men may dissent from these views, no student of mediæval history will refuse to accept dean Milman's verdict on the career of Innocent III., that "his high and blameless, and, in some respects, wise and gentle character, seems to approach more nearly than any one of the whole succession of Roman bishops to the ideal light of a supreme pontiff;" and

that "in him, if ever, may seem to be realized the churchman's highest conception of a vicar of Christ" (*Latin Christianity*, iv. 277).

INNOCENT XI. (BENEDETTO ODESCALCHI), elected in 1676, was one of the most distinguished among the popes of the 17th century. He was a vigorous and judicious reformer, and his administration is entirely free from the stain of nepotism, which had sullied the fame of many of his predecessors. But his historical celebrity is mainly owing to his contest with Louis XIV., which illustrates as well the personal character of the pontiff, as the peculiar spirit of the age. The dispute began from an attempt on the part of the pope to put an end to the abuse of the king's keeping sees vacant, in virtue of what was called the *Droit de Regale*, and appropriating their revenues. The resistance to this attempt drew forth the celebrated declarations of the French clergy as to the Gallican liberties. See GALLICAN CHURCH. But the actual conflict regarded the immunities enjoyed by the foreign ambassadors residing in Rome, and especially the right of asylum, which they claimed not only for their own residences, but also for a certain adjoining district of the city. These districts had gradually become so many foci of crime, and of frauds upon the revenue; and the pope, resolving to put an end to so flagrant an abuse, gave notice that, while he would respect the rights of the existing ambassadors, he would not thereafter receive the credentials of any new ambassador who should not renounce these abusive claims for himself and his successors. The great powers murmured at this threat, but it was with France that the crisis occurred, on the death of the maréchal d'Estrées. The pope renewed his notice in May, 1687. Louis XIV., on the other hand, instructed his new ambassador to maintain the dignity of France, and sent a large body of military and naval officers to support his pretensions. Innocent persisted in refusing to grant an audience to the ambassador. Louis, in reprisal, seized on the papal territory of Avignon, and threatened to send a fleet to the coast of the papal states, but Innocent was immovable; and in the end, the ambassador was compelled to return with his credentials unopened, nor was the dispute adjusted till the following pontificate. Innocent died in 1689.

INNOCENTS, HOLY, FEAST OF, one of the Christmas festivals, held in the western church on Dec. 28, and in the eastern on the 29th, under a title similar to that of the Latin festival. It is intended to commemorate the massacre of the children "from two years old and upward" at Bethlehem. See HEROD. These children are referred to as martyrs by St. Cyprian, and still more explicitly by St. Augustine; and it is to them that the exquisite hymn of Prudentius, *Salvete Flores Martyrum*, is addressed. The concurrence of the east and west in celebrating the festival is an evidence of its antiquity. In the modern church this feast is celebrated as a special holiday by the young, and many curious customs connected with it prevail in Catholic countries. One of these is, that in private families the children are on this day privileged to wear the clothes of the elders, and in some sort to exercise authority over the household in their stead. So also, in communities of nuns, the youngest sister becomes for this day superioress of the house, and exercises a sort of sportive authority even over the real superiors.

INNOMINATE ARTERY, *Arteria innominata*, is the first large branch given off from the arch of the aorta. It varies from an inch and a half to two inches in length, and divides into the right carotid and the right subclavian arteries. See CIRCULATION, ORGANS OF. This artery, through which all the blood to the right side of the head and neck, and to the right arm, flows, has been tied by several surgeons for aneurism of the right subclavian, but the operation has never been successful. An important fact has, however, been established, viz., that the circulation of the blood in the parts supplied by this large vessel is re-established by anastomosis (q.v.) after the operation.

INNOMINATE BONE. See PELVIS.

INNOVA'TION, OR NOVATION, a name sometimes given in the law of Scotland to the exchange or substitution of one obligation for another. It is in effect taking a fresh security.

INNS OF COURT, the name given in England to certain voluntary societies which have the exclusive right of calling persons to the English bar. There are four such societies in London, viz., the inner temple, the middle temple, Lincoln's inn, and Gray's inn. Each of these inns possesses certain smaller inns, which are mere collections of houses or chambers, as Clifford's inn, new inn, Furnival's inn, etc. The four inns are each governed by a committee or board, called the benchers, who are generally queen's counsel or senior counsel, self-chosen, i.e., each new bencher is chosen by the existing benchers. Each inn has also a local habitation, consisting of a large tract of houses or chambers, which are in general occupied exclusively by barristers, and sometimes by attorneys, and are a source of great wealth. Each inn is self-governing, and quite distinct from the others, all, however, possessing equal privileges; but latterly they have joined in imposing certain educational tests for the admission of students. It is entirely in the discretion of an inn of court to admit any particular person as a member, for no member of the public has an absolute right to be called to the bar, there being no mode of compelling the inn to state its reasons for refusal. But, practically, no objection is ever

made to the admission of any person of good character. Each inn has also the power of disbarring its members, that is, of withdrawing from them the right of practicing as counsel. This right has been rarely exercised, but of late years there have been examples of persons abusing their profession, and indulging in dishonest practices; in such cases, the inn has its own mode of inquiring into the facts affecting the character of a member, and is not bound to make the investigation public. By this high controlling power over its members, a higher character is supposed to be given to the bar as a body, than if each individual was left to his own devices, unchecked, except by the law. See BARRISTER.

INNSBRUCK, capital of the Tyrol, is charmingly situated on the Inn, at its junction with the Sill, at the height of 1900 ft. above sea-level, in the midst of a valley, surrounded by mountains ranging from 6,000 to 9,200 ft. high. It lies on the right bank of the Inn, and is connected with the suburb of St Nicolaus, on the left bank, by a wooden bridge, from which the name of the town (*Inn's Brücke*, Ger. the Inn's Bridge) is derived. The Inn is also crossed by a chain bridge a little below the town. The Franciscan church, or hofkirche, architecturally uninteresting, is remarkable for its elaborate monument to the emperor Maximilian I., which, though constructed at the request of Maximilian, and intended for his burial-place, does not contain his remains. The monument consists of a marble sarcophagus supporting the emperor's effigy in bronze, in a kneeling posture; while on both sides of the aisle are rows of monumental bronze figures, 28 in number, representing a variety of distinguished personages, male and female. In this church, on Nov. 3, 1651, Christina (q.v.) of Sweden was solemnly received into the Roman Catholic church. The other chief buildings are the Ferdinandeum, a museum containing a collection of the productions of the Tyrol in art, literature, and natural history; and the university (founded in 1672, and, after several vicissitudes, organized anew in 1825), with faculties, which has now upwards of 500 students and about 70 professors and lecturers. Innsbruck carries on important manufactures of woolen cloth, silk, gloves, ribbons, and carved work, as well as a flourishing transit trade. It is connected with Munich by railway, and a railroad across the Brenner pass, completed in 1867, unites Innsbruck with Botzen and Verona. Pop. '80, 20,237.

INNUEN'DO, a part of a pleading in cases of libel and slander, pointing out what and who was meant by the libelous matter or description.

INNUIT. See ESQUIMAUX, *ante*.

INO, in Grecian mythology, was the daughter of Cadmus and Harmonia. Athamas king of Thebes, having divorced Nephele, whom he had married by the command of Juno, then married Ino, who bore him two sons, Learchus and Melicertes. Ino, jealous of Phrixus and Helle, the sons of Nephele, as her sons' rivals to the throne, sought to destroy them. This so enraged Juno that she made Athamas mad, who in his frenzy killed his son Learchus. Ino, fleeing with Melicertes in her arms, pursued by her husband, leaped into the sea, and was changed by the gods into a sea-goddess under the name of Leucothea. The story of Ino is used with many variations by Sophocles and other Greek dramatists.

INOCARPUS (*I. edulis*), the *mape* or *rata* of the South sea islands, is a tree important to their inhabitants for its fruit, a nut covered with a thin fibrous husk, which supplies a considerable part of their food, and is sometimes called the South sea island chestnut. The fruit is pulled in a green state, and roasted. The tree is a very beautiful one, of stately growth and fine foliage; the leaves oblong, 6 or 8 in. long, evergreen, but of delicate texture. It is one of those which, as they advance in age, instead of increasing uniformly in thickness, throw out buttresses to support the trunk. Small projections first appear, extending in nearly straight lines from the root to the branches, which finally become like so many planks covered with bark. The central stem continues for many years perhaps only 6 or 7 in. in diameter, whilst the buttresses, 2 or 3 in. thick, extend from it at the bottom, 2, 3, or 4 feet. These natural planks are used for paddles of canoes and other purposes.

INOCULA'TION. If the matter of a variolous (or small-pox) pustule, taken after the commencement of the eighth day, be inserted in or beneath the skin of a person who has not previously suffered from small-pox, the following phenomena are induced: 1. Local inflammation is set up; 2. At the end of six days there is fever similar to that of small-pox; and 3. After the lapse of three more days, there is a more or less abundant eruption of pustules. This process is termed inoculation, and the disease thus produced is denominated inoculated small-pox. The disease produced in this artificial manner is much simpler and less dangerous than ordinary small-pox; and as it was an almost certain means of preventing a subsequent attack of the ordinary disease, inoculation was much practiced till the discovery (about 1796*) of the antivariolous power of vaccination.

* This was the year in which Jenner inoculated his first case (the boy Phipps) with matter taken from the hand of a girl who had been directly infected by the cow. He was aware of the protective efficiency of cow-pox as early as 1770, and mentioned the circumstance in that year to his master, John Hunter.

The importance of inoculation was recognized in the east at a very early period. According to Dr. Collinson (*Small-pox and Vaccination Historically and Medically Considered*, p. 14), the Chinese had practiced this process from the 6th c., and the Brahmins from a very remote antiquity. In Persia, Armenia, and Georgia it was in use, and it is even said to have been employed in Scotland and Wales. It was not, however, till lady Mary Wortley Montagu wrote her celebrated letter from Adrianople in 1717 that the operation became generally known in this country. In that letter she writes: "The small-pox, so fatal and so general amongst us, is here entirely harmless, by the invention of *engrafting*, which is the term they give it. Every year, thousands undergo the operation. There is no example of any one who has died of it, and you may believe that I am well satisfied of the safety of this experiment, since I intend to try it on my dear little son." Four years afterwards, she had her daughter publicly inoculated in this country; the experiment was then performed successfully on six condemned criminals at Newgate, and on the strength of these successful cases, "the critical course was taken of inoculating two children of Caroline, princess of Wales, which gave a sanction to the practice."—Collinson, *op. cit.* p. 15.

Inoculation was not, however, thoroughly established for more than a quarter of a century after its introduction. It met with virulent opposition both from the medical profession and the clergy. A sermon is extant which was preached in 1722, by the rev. Edward Massey, in which it is asserted that "Job's distemper was confluent small-pox, and that he had been inoculated by the devil." The great drawback to inoculation turned out, however, to be this: while it was invaluable to him who underwent the operation, and completely guarded him from the natural disease in its severe form, its effect upon the community at large was extremely pernicious, in keeping alive the natural disease, and increasing its spread amongst those who were not protected by inoculation. While one in five or six of those who took the natural disease died, the average number of deaths at the inoculation hospital was only 3 in 1000; and yet, according to the authority of Heberden, in every thousand deaths within the bills of mortality in the first 30 years of the 18th c. (before inoculation was at all general), only 74 were due to small-pox. The deaths from this disease amounted to 95 in 1000 during the last 30 years of the century; so that, notwithstanding the preservative effects of inoculation on almost all who were operated on, the total number of deaths from this disease increased in 100 years in the ratio of about 5 to 4. Moore (*The History of Small-pox*, 1815) states that, at the beginning of the 18th c., about one-fourteenth of the population died of small-pox; whereas, at the latter end of the same century, the number (notwithstanding, or perhaps rather in consequence of, inoculation) had increased to one-tenth; and this immense consumption of human lives was not the total evil, for many survivors were left with the partial or entire loss of sight and with destroyed constitutions. From these remarks it will be seen that the benefits which were expected from inoculation were far from being realized, and small-pox would doubtless have gone on increasing in its destructive power, if it had not been checked by Jenner's invaluable discovery of vaccination (q.v.).

INOFFI'CIOUS TESTAMENT, a will made whereby near relatives have not been provided for by the testator.

INOSITE, or PHASEOMANNITE (Gr. *ἴνός*, muscle), $C_6H_{12}O_6$, a variety of glucose, or grape sugar, named from its occurrence in the muscular substance of the heart as first shown by Scherer. Cloetta found it in the lungs, kidneys, spleen and liver, and Müller in the brain. It is also contained in urine in *diabetes mellitus*, and in Bright's disease of the kidneys, and also in abundance in the vegetable kingdom, as in the unripe fruit of *phaseolus vulgaris*, green kidney beans, peas, cabbage, asparagus, and many other plants. By careful crystallization, it is obtained in beautiful rhombic tables resembling gypsum. In microscopic preparations it has the form of fine prismatic tufts. It readily dissolves in water, but is insoluble in alcohol or ether. It does not ferment under the influence of yeast, but with cheese, flesh, and decaying animal tissues in the presence of chalk, it undergoes lacteous fermentation—lactic, butyric, and carbonic acids being formed. Inosite is unchanged when heated with dilute mineral acids, and also when boiled in strong aqueous solutions of potash or baryta, without being colored. If inosite be evaporated nearly to dryness, and a small portion of calcium chloride and ammonia be added, upon re-evaporation a beautiful, characteristic rose color will be produced. See SUGAR.

INO'UYE KAYO'RU. A Japanese statesman b. in Choshiu. Sent to Europe by his daimio in 1863 to study, he returned in 1864 and endeavored, by acting as mediator to his clansmen, to prevent the bombardment of Shimonoseki in 1864. He was appointed minister of finance. He went to Corea, and negotiated the treaty with Corea, Feb. 27, 1876, after which he visited the centennial exposition at Philadelphia. He was appointed minister of foreign affairs, 1879. Under his conduct the treaties with Japan will be revised.

INOWRA'CLAW (called also JUNG BRESLAU, "Young Breslau"), a small t. of Prussia, in the government of Posen, is situated on an eminence in a fruitful plain, 26 m. s.s.e. of Bromberg. It is an ill-built town; contains many religious edifices; carries on a con-

siderable trade, especially in brewing, distilling, and the manufacture of machinery; and has a pop. of, '75, 9,139.

IN PARTIBUS INFIDE'LIUM (Lat., "in the regions of the unbelievers"). Titular bishops in the church of Rome have been styled bishops *in partibus infidelium* since the 13th century. They are actual bishops, who have no diocese, and take their titles from places where there is now no bishop's see, but where there once was. This practice originated after the Greek schism, and became general in the time of the Crusades. The places conquered by the crusaders in the east were furnished with Roman Catholic bishops; but when these conquests were again lost, the popes continued to appoint and consecrate the bishops, as a continual protest against the power which had prevailed over their alleged right, and to signify their hope of restitution. The same policy has been pursued with regard to Protestant countries. But in Britain the assumption of territorial titles being illegal and dangerous, the Roman Catholic bishops actually resident have usually borne titles derived from distant places. Thus, till 1878, the bishop in Edinburgh was styled bishop of Abila. The Roman Catholic bishops in England were similarly designated from places abroad until 1850, when their assumption of titles from their actual sees gave prodigious offense to the church of England, and led to the passing of the *ecclesiastical titles bill*, which, however, remained a dead letter, and was repealed in 1871.

IN PERSONAM. See In Rem.

INQUEST. See Coroner.

INQUEST OF OFFICE, a process to put the king or the state in possession of escheated lands or tenements, goods or chattels. The case must be tried by a jury, not of any particular number of persons; it may be twelve, or more or less than that number, as may happen to be convenient. In this country the process is resorted to when real property is to be forfeited to the state for want of heirs. In states where aliens, by the operation of the common law, are not allowed to hold real estate, an inquest of office would be applicable to vest in the state the title to lands in their possession.

INQUISI'TION, in English law, is the return or report made by a sheriff or coroner as to the finding of a jury on matters inquired into.

INQUISITION, The, called also the Holy Office, a tribunal in the Roman Catholic church for the discovery, repression, and punishment of heresy, unbelief, and other offenses against religion. From the very first establishment of Christianity as the religion of the Roman empire, laws, more or less severe, existed as in most of the ancient religions, for the repression and punishment of dissent from the national creed; and the emperors Theodosius and Justinian appointed officials called "inquisitors," whose special duty it was to discover and to prosecute before the civil tribunals offenses of this class. The ecclesiastical cognizance of heresy, and its punishment by spiritual censures, belonged to the bishop or the episcopal synod; but no special machinery for the purpose was devised until the spread, in the 11th and 12th centuries, of certain sects reputed dangerous alike to the state and to the church—the Cathari, Waldenses, and Albigenses—excited the alarm of the civil as well as of the ecclesiastical authorities. In the then condition of the public mind, however differently it is now constituted, heresy was regarded as a crime against the state, no less than against the church. An extraordinary commission was sent by pope Innocent III. into the s. of France to aid the local authorities in checking the spread of the Albigensian heresy. The fourth Lateran council (1215) earnestly impressed, both on bishops and magistrates, the necessity of increased vigilance against heresy; and a council held at Toulouse directed that in each parish the priest, and two or three laymen of good repute, should be appointed to examine and report to the bishop all such offenses discovered within the district.

So far, however, there was no *permanent* court distinct from those of the bishops; but under Innocent IV., in 1248, a special tribunal for the purpose was instituted, the chief direction of which was vested in the then recently established Dominican order. The inquisition thus constituted became a general, instead of, as previously, a local tribunal; and it was introduced in succession into Italy, Spain, Germany, and the southern provinces of France. So long, moreover, as this constitution remained, it must be regarded as a strictly papal tribunal. Accordingly, over the French and German inquisition of the following century the popes exercised full authority, receiving appeals against the rigor of local tribunals (Fleury, v. 266), and censuring, "or even depriving," the inquisitor for undue severity (*ibid.* 303). In France, the inquisition was discontinued under Philip the handsome; and though an attempt was made under Henry II. to revive it against the Huguenots, the effort was unsuccessful. In Germany, on the appearance of the Beghards (see Beguines), in the beginning of the 14th c., the inquisition came into active operation, and inquisitors for Germany were named at intervals by various popes, as Urban V., Gregory XI., Boniface IX., Innocent VIII., down to the reformation, when it fell into disuse. In England, it was never received, all the proceedings against heresy being reserved to the ordinary tribunals. In Poland, though established in 1327, it had but a brief existence. The history of the times of its introduction and of its discontinuance in the various states of Italy, would carry us beyond the limits at our command.

It is the history of the inquisition as it existed in Spain, Portugal, and their dependencies, that has absorbed almost entirely the real interest of this painful subject. As an ordinary tribunal similar to those of other countries, it had existed in Spain from an early period. Its functions, however, in these times were little more than nominal; but early in the reign of Ferdinand and Isabella, in consequence of the alarms created by the alleged discovery of a plot among the Jews and the Jewish converts—who had been required either to emigrate or to conform to Christianity—to overthrow the government, an application was made to the pope, Sixtus IV., to permit its reorganization (1478); but in reviving the tribunal, the crown assumed to itself the right of appointing the inquisitors, and, in truth, of controlling the entire action of the tribunal. From this date forwards, Catholic writers regard the Spanish inquisition as a state tribunal, a character which is recognized by Ranke, Guizot, Leo, and even the great anti-papal authority, Llorente; and in dissociating the church generally, and the Roman see itself, from that state tribunal, Catholics refer to the bulls of the pope, Sixtus IV., protesting against it. Notwithstanding this protest, however, the Spanish crown maintained its assumption. Inquisitors were appointed, and in 1483 the tribunal commenced its terrible career, under Thomas de Torquemada. The popes, feeling their protest unsuccessful, were compelled, from considerations of prudence, to tolerate what they were powerless to suppress; but several papal enactments are enumerated by Catholics, the object of which was to control the arbitrary action of the tribunal, and to mitigate the rigor and injustice of its proceedings. Unhappily, these measures were ineffective to control the fanatical activity of the local judges. The number of victims, as stated by Llorente, the popular historian of the inquisition, is positively appalling. He affirms that during the 16 years of Torquemada's tenure of office, nearly 9,000 were condemned to the flames. The second head of the inquisition, Diego Deza, in eight years, according to the same writer, put above 1600 to a similar death; and so for the other successive inquisitors-general. But Catholics loudly protest against the credibility of these fearful allegations. It is impossible not to see that Llorente was a violent partisan; and it is alleged that in his work on the Basque Provinces, he had already proved himself a venal and unscrupulous fabricator. Although, therefore, he has made it impossible to disprove his accuracy by appealing to the original papers, which he himself destroyed, yet his Catholic critics—as Hefele in his *Life of Cardinal Ximenes*—have produced from his own work many examples of contradictory and exaggerated statements; Prescott, in his *Ferdinand and Isabella* (iii. 467–470), has pointed out many similar instances; Ranke does not hesitate (*Fürsten und Völker der Süd. Europas*, i. 242) to impeach his honesty; and Prescott pronounces his "computations greatly exaggerated," and his "estimates most improbable" (iii. 468). Still, with all the deductions which it is possible to make, the working of the inquisition in Spain and in its dependencies even in the new world, involves an amount of cruelty which it is impossible to contemplate without horror. When it was attempted to introduce it into Naples, pope Paul III., in 1546, exhorted the Neapolitans to resist its introduction, "because it was excessively severe, and refused to moderate its rigor by the example of the Roman tribunal" (Llorente, ii. 147). Pius IV., in 1563, addressed a similar exhortation on the same ground to the Milanese (*ibid.* ii. 237); and even the most bigoted Catholics unanimously confess and repudiate the barbarities which dishonored religion by assuming its semblance and its name.

The procedure of the inquisition deserves a brief notice. The party, if suspected of heresy, or denounced as guilty, was liable to be arrested and detained in prison, only to be brought to trial when it might seem fit to his judges. The proceedings were conducted secretly. He was not confronted with his accusers, nor were their names even then made known to him. The evidence of an accomplice was admissible, and the accused himself was liable to be put to the torture, in order to extort a confession of his guilt. The punishments to which, if found guilty, he was liable, were death by fire, as exemplified in the terrible Auto da Fé (q.v.), or on the scaffold, imprisonment in the galleys for life or for a limited period, forfeiture of property, civil infamy, and in minor cases, retractation and public penance. This form of procedure is strangely at variance with modern ideas; but it is fair to recollect that some of the usages were but the ordinary procedures in all the courts of the age, whether civil or ecclesiastical.

The rigor of the Spanish inquisition abated in the latter part of the 17th century. In the reign of Charles III., it was forbidden to punish capitally without the royal warrant; and in 1770 the royal authority was required as a condition even for an arrest. From 1808, under king Joseph Bonaparte, the inquisition was suppressed until the restoration: it was again suppressed on the establishment of the constitution in 1820; but it was partially restored in 1825; nor was it till 1834 and 1835 that it was finally abolished in Spain, its property being applied to the liquidation of the national debt.

The inquisition was established in Portugal in 1557, and its jurisdiction was extended to the Portuguese colonies in India. The rigor of its processes, however, was much mitigated in the 18th c., and under John VI. it fell altogether into disuse.

The inquisition in Rome and the papal states never ceased, from the time of its establishment, to exercise a severe and watchful control over heresy, or the suspicion of heresy, which offense was punished by imprisonment and civil disabilities; but of capital sentences for heresy, the history of the Roman inquisition presents few instances, and, according to Balmez (*On Civilization*, p. 156), that tribunal "has never been known

to order the execution of a capital sentence" for the crime of heresy. The tribunal still exists under the direction of a congregation, but its action is confined to the examination of books and the trial of ecclesiastical offenses, and questions of church law, as in the recent case of the boy Mortara; and its most remarkable prisoner in recent times was an oriental impostor, who, by means of forged credentials, succeeded in obtaining his ordination as a bishop.—See Llorente's *Istoria Critica de la Inquisicion;* Prescott's *Ferdinand and Isabella;* Hefele's *Der Cardinal Ximenes; eine Biographie;* Balmez, *Catholicism and Protestantism compared in Relation to Civilization.*

INQUISITION (*ante*). The first Christian emperors, following the example of their predecessors in regarding themselves as legal masters of all things within the empire, assumed the control of theological opinion and the punishment of errors therein. Constantine banished Arius, after his condemnation by the council of Nicæa, and ordered his books to be burned. He afterwards banished Athanasius. Constantius, 335, inflicted the same punishment on Hosius of Cordova because he refused to condemn Athanasius. Theodosius, having resolved to exterminate Arianism, compelled the archbishop of Constantinople to resign, directed his lieutenant to expel by force of arms all the Arian clergy from the churches, issued many edicts against all heretics, and was the first of the Christian emperors to inflict the penalty of death on a Christian because of heretical opinions. In the 8th c. synodal courts increased the facilities for detecting and punishing heresy.

The inquisition in FRANCE. In the latter part of the 12th c. various sects called heretical, such as the Cathari, Albigenses, and Waldenses, had increased so much, especially in the s. of France, that very vigorous measures to destroy them were deemed necessary. Papal legates, accordingly, were sent to assist in the work; and from that time the inquisition became a permanent institution. The work of seeking out and punishing heresy was systematically pursued. Two or three persons in each parish, and, if necessary, all the inhabitants, were made sworn agents in discovering those who were heretical, who held secret meetings, or forsook, in any particular, the prescribed course. They who refused to take the oath exposed themselves to the suspicion of heresy. Bishops who were not zealous in searching out the heretical were deprived of office; and, whether zealous or not, they were under the supervision of the legates, who in fact controlled the work. The commission, which the council of Toulouse required to be appointed in each parish, was to be employed exclusively in searching out heretics and in reporting them for trial and punishment. He who concealed the guilty forfeited his offices and lands. The house which sheltered them was to be destroyed. If they were sick, no physician was allowed to visit them. The penitent among them, clad in a peculiar garb, were driven from their homes, and, unless specially favored by the pope, were deprived of all office. But as, notwithstanding all these measures, heresy still prevailed, the inquisition was made a papal tribunal to which the bishops themselves were subjected and over which the monks of the Dominican order were appointed the permanent head. Their eagerness in the work soon gave popular currency to a satirical change of their name into *Domini canes* (the dogs of the Lord). The civil authority was made the executioner of the judgments which they pronounced. Persons who were even suspected of heresy were liable to imprisonment, accomplices and criminals were received as witnesses, the accused never saw his accusers nor was told who they were. Torture for compelling confession was at first allowed to be used only under the authority of the civil power; but afterwards, in order to maintain secrecy, the inquisitors themselves applied it at their pleasure. The jurisdiction and also the emoluments of the tribunal were enlarged by extending the meaning of the word *heresy* so as to include usury, fortune telling, insult to the cross, contempt of the clergy, and connection with leprous persons, Jews, and demons, demonolatry, and witchcraft. Those who recanted were condemned to practice penance of the severest kind, and were often deprived of all their privileges, rights, and property. Those who barely escaped conviction were imprisoned for life; and the obstinate and the relapsed were put to death at the stake by the secular arm. In 1252 Innocent IV. commanded that accused persons should be tortured not only to make them confess their own heresy, but also to reveal that of others.

In GERMANY the first inquisitor was Conrad of Marburg, who administered the office with great severity (1231–33). The sentences of death which he pronounced were all approved by the emperor, Ferdinand II., but were so vigorously opposed by the nobility and people that very few of them could be executed. In 1233 the lower orders of people, taking the law into their own hands, attacked and killed Conrad in the streets of Strasburg. When the Beghards appeared, 1367, Urban V. appointed two Dominicans inquisitors, who, countenanced by the emperor, Charles IV., renewed in Germany the cruelties practiced by their order in France. Afterwards the number of inquisitors was increased to six for the n. of Germany alone. As the reformatory influences increased, the general work of the inquisition was diminished, but in the latter part of the 15th c. a special zeal against sorcery and witchcraft was awakened, under the transient power of which many persons were put to death. In the 16th c. the reformation overthrew the tribunal, and all subsequent efforts to set it up again in Germany proved vain.

In ITALY the inquisition, partially introduced under the Dominicans in 1224, was

fully established by Gregory IX. in 1235. Its power was first directed chiefly against the Waldenses, who, having fled from the s. of France to Piedmont, were filling Italy with their doctrine. Afterwards it took in hand other heresies also; but it was greatly weakened by the schism in the papacy and by political agitations in the free states of Italy. About the middle of the 14th c., notwithstanding the opposition and the censures of Clement VI., measures were generally adopted to restrain its exorbitant power. The inquisitors were compelled to associate the bishops with them in examining accused persons; they were restricted to the cognizance of heresy alone, and the power of imprisonment, confiscation, fine, and corporal punishment was remanded to the secular arm. But such proceedure having proved insufficient for suppressing free inquiry and maintaining the authority of the church, Paul III. instituted a supreme and universal inquisition at Rome, consisting of six cardinals, and having authority on both sides of the Alps to try all causes of hercsy, with the power of arresting and imprisoning suspected persons and their abettors, of whatsoever estate, rank, or order. The grace of reconciliation and absolution the pope retained in his own hands. He assumed also the authority of the judge, and arrogated the power of life and death even over the subjects of the different governments of the world. These cardinal inquisitors soon made themselves feared in Italy and all countries over which they had influence. In Rome they executed their victims with less publicity but more frequency than the Spanish inquisitors. They were tyrannical also in their treatment of the press. Some books they destroyed, others they disfigured, and all printers they restrained from doing any work without a license from them. Opposition to them, however, everywhere arose. The republic of Venice, refusing to receive a tribunal responsible only to the pope, insisted that with his officers a certain number of Venetian magistrates and lawyers should always be joined, and that the final sentence concerning lay persons should be submitted to the senate before it was announced. The Neapolitans at the beginning of the 16th c. had twice resisted successfully the establishment of the inquisition among them. In 1546 the emperor, Charles V., renewed the attempt to introduce it into Naples, and according to the Spanish model. But the people, rising in arms against it, refused to receive anything more than a tribunal of limited powers similar to that of Venice. In Sicily, Spain supplied an inquisitor; and after the tribunal had been for a time abolished, it was restored in 1782, and was retained until 1808, when Napoleon, as king of Italy, abolished it. In Sardinia, having been restored by Gregory XVI. in 1833, it continued until the revolution of 1848. In Tuscany three commissioners, elected by the congregation at Rome, in concert with the local inquisitor, handed over their sentence to the duke, who was bound to execute it. In addition to this provision the "holy office" exerted its influence with the local authorities to send accused persons, especially ecclesiastics and strangers, to be tried at Rome. Since the abrogation of the pope's temporal power the tribunal still exists at Rome, but its public action is greatly restrained.

Spain. The inquisition was commenced, 1242, in Aragon, where the council of Tarragona gave instructions to the Dominicans. During the 13th and 14th centuries its power was directed fiercely against the Albigenses, who were numerous in that part of Spain. St. Ferdinand sometimes threw the fagots on the pile, and John II. hunted the hereties of Biscay as wild beasts among the mountains. By the middle of the 15th c., when the heresy of the Albigenses had been almost extirpated, new material for the inquisition was found among the Jews, many of whom, having professed conversion to Christianity, were suspected of being still unbelievers. After the union of Aragon and Castile the inquisition was reorganized in a more malignant form with the zealous approval of Ferdinand and the reluctant assent of Isabella. The first three general inquisitors, Torquemada, Desa, and Ximenes, made their names infamous by cruelties which, after all the deductions which can possibly be claimed, appear improbable and almost incredible, simply because of the multitude of the victims, and of the horrible sufferings to which they were doomed.

In Portugal the efforts made to establish the inquisition failed almost entirely until after the union with Spain. It was then, under Spanish influence, introduced, yet not without difficulty, and only as a tribunal of the crown. The pope protested against this independent feature of it, but was compelled to tolerate what he could not prevent, and to be satisfied with a share in the proceedings and of the pecuniary gains. The highest tribunal was at Madrid, and the grand inquisitor was appoined by the king, subject nominally to approval by the pope. When Portugal became again an independent kingdom, John IV. endeavored to abolish the inquisition, but was prevented by the opposition of the Jesuits and priests. In the 18th c. Pedro II. succeeded in imposing restraints on the tribunal; in the next reign, the Jesuits having been expelled, its power was still further diminished; and under John VI. it was abolished, and the record of its proceedings burned.

Into the Netherlands the inquisition was introduced in the 13th c., and exerted its authority severely. Under Spanish influence it was especially active during the reformation. In 1521 Charles V. published at Worms an edict against heretics, and appointed two inquisitors for the Netherlands, who, entering immediately on their work, were greatly aided by the regent, Margaret of Austria, and Granvella, bishop of Arras. Nevertheless, the reformation spread, and Charles, bent on destroying it, commanded the inquisition to be reorganized after the Spanish model. This command he after-

wards modified in consequence of the courageous representations of the new regent, Maria, queen of Hungary. Still the tribunal was very active, and great numbers of persons were condemned and put to death. Under Philip II. new cruelties were inflicted which, instead of extinguishing heresy, added new intenseness to popular fury. Several cities immediately united in demanding the abolition of the tribunal; others joined them, and in 1556 a league of the nobility was formed which, in loyal but earnest terms, renewed the request. This was for a time granted; but soon the duke of Alva was sent to the Netherlands with unrestricted powers; and cruelties, hitherto unknown, were inflicted on the suspected and the rich. In 1568, by a sentence of the "holy office" all the inhabitants of the Netherlands were condemned to death as heretics. "From this universal doom only a few persons, specially named, were excepted. A proclamation of the king, dated ten days later, confirmed this decree and ordered its instant execution. Three millions of people—men, women, and children—were sentenced to the scaffold in three lines" (Motley, *Rise of the Dutch Republic*, ii. 155.). Even this did not destroy the reformation; but after the provinces had been desolated and almost depopulated by emigration and death, their independence was secured, and the inquisition driven from the land.

In Mexico, South America, and India the inquisition was established by Portugal and Spain. Under John VII. of Portugal it was abolished in India and Brazil.

IN REM, a legal phrase designating an action against the thing, in contradistinction to proceedings *in personam*, or against the person. In admiralty practice such actions are common. They are brought for the enforcement of maritime liens against a vessel or cargo for the recovery of salvage, to procure the forfeiture of property, for a violation of the revenue laws, or to obtain possession of a prize in time of war. The action is solely against the property, taking no account of the owner or person in possession. The property, whatever it may be, is treated as if it were the defendant. If it be a vessel of that name, the title of the action will be "The United States *vs.* the ship *Parthian.*" The same form of action is used to determine the legal status of a party before a court in respect to marriage, divorce, or other personal relations. Decrees in actions *in rem*, in whatever country they may have been made by a court of competent jurisdiction, are generally respected by the courts of other countries.

INSANITY means all unhealthiness of mind. This consists, according to one opinion, in such disorganization or degeneration of the nervous structure as to render the exercise of reason impossible; according to another, it consists in disorder of the reason itself; and according to a third, in perversion or destruction of the soul, or the moral part of our nature. The prevailing view of physiologists is, that insanity is a symptom or expression, manifested through the functions of the nervous system, of physical disease. The legal term, lunacy, represents only those deviations from that standard of mental soundness which is universally recognized, although difficult of definition, in which the person, the property, or the civil rights may be interfered with. These deviations are, briefly, where the incapacity, or violence, or irregularities of the individual are such as to threaten danger to himself or others, and to unfit him for his ordinary business and duties. Insanity is more comprehensive, and includes all states of the feelings and passions, as well as of the understanding, which are inconsistent with the original and ordinary character and habits of the individual, and with his relations to the family or community of which he is a member. It has been stated broadly, that if a man be deprived of the enjoyment of his religious rights by exclusion from membership of the church to which he belongs; of his civil rights in giving evidence in a court of justice or on oath; and of his personal rights in the management of his property and affairs, he may be regarded as insane; but more correct views of the human mind have led to the belief, that many degrees of feebleness of the faculties, many forms of eccentricity and extravagance, and many defects in the will and moral sentiments, which were formerly regarded as crime and wickedness, but which do not involve such deprivation, may be classed under the same designation. Very recently, the interpretation of insanity has been greatly widened, and now includes various degrees of moral perversion, morbid habits, and sudden impulses, such as dipsomania and homicidal mania. The great divisions of this class of diseases into mania, melancholia, and imbecility, remain popularly very much the same as they were 2,000 years ago. While this fact may indicate that such a classification has a foundation in nature, it has, unfortunately, tended to render the treatment, or rather the maltreatment, of the insane as stationary as the view of the diseases under which they labor. The following arrangement may serve to explain what insanity is, as well as what it appears to be.

Affections of the Intellectual Powers.—*Idiocy*, the non-development of one or more faculties. *Imbecility*, the imperfect development of one or more faculties. *Fatuity*, or *dementia*, the deprivation by disease, or age, or otherwise, of powers which have been developed. *Mania*, with delusion, excitement, and irregular action of all, but especially of the intellectual powers; accompanied also by errors connected with the special senses.

Affections of the Sentiments.—*Melancholia*, exaltation of grief, penitence, and anxiety. *Monomania of fear*, exaltation of cautiousness. *Monomania of pride*, exaltation of self-esteem. *Monomania of superstition*, exaltation of the sense of devotion and

the marvelous. *Monomania of suspicion*, exaltation of jealousy, envy, want of confidence. *Monomania of vanity*, exaltation of craving for applause, grandeur, of feeling of ambition.

Affections of Propensities.—*Dipsomania*, incontrollable craving for stimulants. *Homicidal mania*, impulsive desire to destroy life. *Kleptomania*, incontrollable desire to acquire.

This catalogue is not intended to be exhaustive. The departures from health will correspond not merely with the primitive mental powers and instincts, but with every possible combination of these, and with such complications as may result from hereditary predispositions, innate peculiarities, education, and habit.—Dr. Combe *On Derangement;* Copland's *Dictionary*, art. "Insanity."

For the disposal and treatment of the insane, see Lunatic Asylum.

INSANITY (*ante*), unsoundness of mind. Unhealthiness and unsoundness, according to general usage, are not synonymous terms when applied to the mind. A perfectly healthy mind requires a perfectly healthy body, and it also needs a certain healthy or normal training. The degree and also the quality of unhealthiness or unsoundness to constitute insanity must be such as to destroy a certain amount of the self-control of the individual, or to produce a degree of *perversion* of the intellectual or moral faculties. Modern alienists hold that such perversion is always connected with physical disease of some part of the nervous system. In most cases post-mortem examinations, as they are now made, reveal nervous lesions of some kind in all persons dying insane. Certain rules, useful, though sometimes empirical, for the diagnosis of insanity are adopted by physicians. Persons threatened with insanity are usually depressed in their manner, or are easily excited, the excitement being greatly out of proportion to the cause. A want of co-ordination of the faculties of the mind leads the subject to erroneous conclusions, and the formation, therefore, of false data; hallucinations appear, and the mind becomes completely unhinged. All forms of insanity have one important symptom in common, which is an impairment of the faculty of attention, arising, probably, from the loss of will. Delusions and hallucinations are, however, more certain symptoms, and clear ideas as to the definition of these terms are important. A delusion is more nearly connected with the mind; a hallucination is the result of an error in some sensory function. A man laboring under a delusion may believe that he is about to lose, or has lost, all his property when there is no foundation for such a belief, or that he is some other person, or that he is in possession of great riches. These delusions, therefore, may be of a gloomy or of a hopeful and exalted nature. A person laboring under a hallucination may imagine that he sees a spirit, or a person who does not exist, or different kinds of animals. In the temporary insanity of delirium tremens such hallucinations often occur. Hallucinations affecting the organs of taste and smell are common among the insane, and they are usually of an unpleasant character. Hallucinations of sight are common in those stages of insanity accompanied by exhaustion of the brain, when supernatural visions are likely to occur, and such patients often imagine that they hear voices commanding them to perform certain acts, often of a criminal nature, and of course they are then dangerous. Insane persons have a disposition to take off their clothes, sometimes probably from a feeling of oppression, sometimes with the idea of exposing the person. Insanity, especially that connected with epilepsy, often manifests itself in homicidal tendencies and acts. Although the qualities of insanity are infinitely various, as must be the result from the infinitely various parts of the nervous system which may be the cause of the aberrant phenomena, or the infinitely various ways in which those parts may be affected, still it is found convenient to classify the various forms into certain general groups, and the practice is not entirely empirical, but is connected with sound philosophy. The division of the older writers was mainly into mania, or violent insanity, and melancholy, with many subdivisions. There were then many fanciful distinctions because the researches of histological pathology had not connected physical phenomena with these causes. It was believed that physical disease was the chief cause, but what the nature of the ailment might be was not as well understood as now. Thomas Arnold, in 1802, made a classification into ideal, and notional, including over thirty varieties. Among certain sub-varieties, which he called pathetic, of which there were sixteen, were amorous, jealous, avaricious, misanthropic, suspicious, bashful, timid, sorrowful, etc. Pinel (q.v.), one of the original reformers in the treatment of the insane, made four principal divisions—mania, melancholy, dementia, and idiocy. Esquirol added monomania. Dr. Pritchard, in 1835, discriminated between moral and intellectual insanity, but many authorities do not recognize such a disease as moral insanity. That insanity is hereditary is now admitted by all alienists and physicians; also, that the inheritance is one of a physical nature, stamped deeply upon the typical structures of the organs of the body. Drunkenness is considered as one of the most powerful causes of insanity, and statistics support the opinion. The report of the commissioners of lunacy in England, in 1844, attribute 18 per cent of about 10,000 cases to the effect of alcohol. Dr. Benjamin Rush attributed the drinking of alcoholic liquors as the cause of more than one-third of the cases in America. Dr. W. B. Carpenter, of London, in his work on *Mental Physiology*, says that this indulgence weakens the *will* to that extent that control is lost over the emotions. Weakening

of the will is, indeed, one of the important features of insanity, and the powerful influence of the extreme use of opium and tobacco in this relation, as well as in weakening the memory, has been the personal experience of many. Dr. Maudsley believes that one of the most powerful causes of insanity is the eager pursuit of riches. He says: "In several instances in which the father has toiled upwards from poverty to vast wealth, with the aim and hope of founding a family, I have witnessed the results in a degeneracy, mental and physical, of his offspring, which has sometimes gone as far as extinction of the family in the third or fourth generation. When the evil is not so extreme as madness or ruinous vice, a mother's influence having been present, it may still be manifest in an instinctive cunning and duplicity, and an extreme selfishness of nature. I cannot but think, after what I have seen, that the extreme passion for getting rich, absorbing the whole energies of a life, does predispose to mental degeneration in the offspring—either to moral defect or to moral and intellectual deficiency, or to outbreaks of positive insanity under the conditions of life."

Institutions for the Insane.—The history of the care of the insane is full of interest. Among the ancients mental disease was less frequent than in modern times, but there were cases of insanity, and these were looked upon with a degree of awe, and the disease was often held to be sacred. In modern times, until the present century, less regard has been paid to the humane treatment of the insane than in any other period of history; although, during the dark and middle ages, the ignorance upon the subject, and the unsettled state of public affairs, must have led to great neglect or cruelty. But neglect to the unfortunate lunatic was much preferable to the care he received when imprisoned within the walls of a madhouse, and subject to the will of a keeper, who was often chosen more on account of his physical than his moral or intellectual qualities. In Europe one of the first measures in the reform of institutions for the insane was made by Pinel, who, in 1792, liberated fifty-three patients at the Bicêtre from chains in which they were bound. But he had been preceded in the same direction by Dr. Franklin, with others, as early as 1750, in the organization of the Pennsylvania hospital, in which a department for the care of the insane was established. A system of treatment was there adopted which was afterwards practiced by Pinel. In England, during the 16th, 17th, and part of the 18th centuries, considerable attention appears to have been given to insane asylums, and lunatics often received comparatively kind treatment; but for various causes, which seem ever to be the accompaniments of human institutions, the management became bad, and the society of Friends, in 1792, established an institution called the "Retreat," which was so successful that the attention of the government was finally called to the subject. A commission was appointed by the house of commons, whose investigations revealed a horrible state of affairs. It was brought out in the evidence before them that it was customary, when lunatics were taken to Dublin, to tie them to the back of a cart and force them to walk the whole distance. About one in five lost an arm from this treatment. It was found, in one house where there were 23 confined—14 men and 9 women—and where 7 of the women were supported at their own expense, that one room on the ground floor, 21 by 16 ft., and 7 ft. high, contained only six cells, 9 ft. long and 5 ft. wide, with a passage of 3 ft. between. There were no windows, and no means for ventilation; and the door opened opposite a pigsty and dung heap about 7 ft. distant. Three cells had board floors, the other three were on the bare ground. The bedsteads consisted of wooden boxes, 6 ft. long and 2½ wide, to which the patient was chained. These unfortunates were taken into the open air once a week, when the straw was changed. The patients were so dirty that careful inspection was impossible. In regard to treatment, the physician at Bethlem said: "Twice a year, with a few exceptions, the patients are bled, and after that they take vomits once a week for a number of weeks, and after that we purge them. That has been the practice for years, long before my time."

The different forms of insanity are usually considered under the following divisions: 1. Melancholia; 2. Mania; 3. Dementia; 4. Imbecility; 5. Idiocy; 6. General Paralysis. Melancholy is usually preceded by hypochondria, and this is caused or accompanied with certain diseased conditions of the bodily organs, very frequently of the liver and digestive organs. The condition is often relieved by frequent administration of cathartics, combined with good diet, wine, iron, exercise, and recreation. When these remedies fail the patient will generally pass into a condition of mania. This is the case when the brain is the subject of degeneration through disease. This deprives the patient of the power of exercising the will; delusions and hallucinations supervene, and the condition becomes one of decided mania. Restraint often becomes necessary, but the tendency is to its abolishment as much as possible, it being rarely practiced except in the acute stages. Mania may be acute or chronic. When there is hereditary taint it may be caused by grief or disappointment; but peculiar forms accompany epilepsy and general paralysis of the insane. The subject of mania exhibits the presence of the disease generally by great mischievousness or filthiness or obscenity, or by all of them. The bodily health of a maniac often does not seem to suffer, but frequently there is great constipation, and serious disturbances are taking place in the cerebral substance, as post-mortem examinations often reveal; but often they are not of a nature to cause death. The strangest of all forms of insanity is what is called general paralysis of the insane, an affection not to be confounded with ordinary paralysis. It has been only

within the present century that the disease has been recognized. M. Calmeil gave a description of it in 1826, and since that time it has been carefully studied. It has three stages: 1. The stage of incubation; 2. The acute maniacal stage; 3. The chronic maniacal stage. A fourth stage might be added, that of dementia, but it is as well regarded as the sequel to or a part of the chronic stage. The subject of this grave disorder generally shows, at the commencement of the attack, a strangeness of manner which is different from that of all other forms of insanity, and which is usually easily recognized by the experienced alienist. The subjects are nearly always males. A man is observed to depart suddenly from his ordinary habits; he seems to have lost his conscience; will make no apology for misconduct, of which he is constantly guilty. He fails to keep appointments, is often extremely immodest, and is easily roused to uncontrollable passion. As the disease advances he becomes sullen and more excitable, so that before long his friends are obliged to put him under restraint. He is prone to imagine himself a great personage, possessed of boundless power and riches, and boasts of performing the most wonderful feats of strength or agility, even after his disease has seriously impaired his bodily strength. In consequence of these peculiar delusions the French have called the disease *manie des grandeurs*. The speech becomes defective, accompanied by a *peculiar* stammer which is difficult to describe, but which is almost diagnostic to the experienced physician. Fits somewhat resembling those of epilepsy take place from time to time, but which are not at all amenable to treatment. A diagnostic distinction between these fits and those of true epilepsy is, that in the latter disease the patient usually bites his tongue, while the general paralytic does not as a rule. One important symptom is irregularity of the pupils of the eye. In 108 cases examined by Dr. Nasse, of Sieburg, irregularity was found in all but three; and Dr. Austin found the exceptions only two in 100. This, taken together with the other symptoms, is decisive. The average duration of the disease is about two years; sometimes it runs its course in a few weeks. Sometimes there is, for a short period, apparent recovery, and the patient may attempt to resume his occupation, but the attempt has always failed. The last stage, that of dementia, is truly pitiable; there is constant tremor, he loses his power to swallow, and will often cram food into his mouth until his cheeks are no longer capable of distension.

The insanity which accompanies epilepsy, known as epileptic insanity, has been studied with care, and many important conclusions have been reached. In this form the acts of the subjects are extremely sudden and independent of the will, and are of a strong homicidal tendency, and after the attack has passed away they are unable to remember anything that has transpired. The pathology of insanity is an exceedingly interesting study. There is often, in addition to evidences of cerebral and membraneous congestion, thickening of the bones of the cranium, and adhesion and thickening of the dura mater. Blood cysts are often found in the arachnoid cavity, and there is great wasting of the cerebral substance, the brains of the insane weighing less than those of persons dying of other diseases.

The treatment of the insane is often difficult, requiring an intricate knowledge of various diseases, and great experience among insane patients; but the most important element of success, under all circumstances, may be embraced in one word—humanity. The wretch who neglects or maltreats the unfortunate subject of mental derangement intrusted to his care, if not himself insane and irresponsible, should be regarded with universal contempt.

According to the census of 1880—the latest official authority at present obtainable—the total number of insane persons in the United States (besides idiots, 76,895) was 91,959, in a population of 50,155,783. In England the total number of insane, including idiots, was, in 1870, 54,713, in a population of 22,090,000; in Scotland, 7,571, in a population of 3,222,837; and in Ireland, 17,194, not including idiots, in a population of 5,195,236. In France, in a population of 37,988,905, there were in 1866, of insane persons, 50,726. It may be estimated that the number of insane in Europe, in 1866, was about 270,000. The following table includes a list of the public and many of the private insane asylums in the United States, with the number of patients:

Name of Institution.	Locality.	Kind.	1873.	1875.	Date and Pat s.	Organ.
Hospital for the Insane.....	Augusta, Me.....	State	411	403	1879, 419	1840
Asylum for the Insane.....	Concord, N. H.....	State	267	281	1879, 268	1842
" " " "	Brattleboro, Vt.....	State	470	471	1878, 459	1836
Asylum for Chronic Insane.....	Worcester, Mass.....	State	.....	.....	1879, 371	
Lunatic Hospital.....	Worcester, Mass.....	State	469	478	1879, 490	1832
" "	Taunton, Mass.....	State	434	602	1879, 559	1853
" "	Northampton, Mass...	State	433	476	1879, 442	1857
Insane Dep., State Almshouse.....	Tewksbury, Mass.....	State	.....	319		
Lunatic Hospital.....	Boston, Mass.....	City	197	200	1878, 200	1839
McLean Asylum for the Insane.....	Somerville, Mass.....	Corp.	161	148	.....	1818
Shady Lawn.....	Northampton, Mass...	Priv.	.....	12		
Lunatic Hospital.....	Danvers, Mass.....	State	.....	.....	1879, 553	1878
State Asylum for Incurable Insane.	Natic, R. I.....	State	.....	173		

Name of Institution.	Locality.	Kind.	1873.	1875.	Date and Pat's.	Organ.
Butler Hospital	Providence, R. I.	Corp.	129	143	1879, 148	1845
General Hospital for Insane	Middletown, Conn.	State	395	450	1879, 510	1866
Retreat for the Insane	Hartford, Conn	Corp.	148	130	1878, 132	1824
Spring Hill Institution	Litchfield, Conn	Priv.	.....	20		
Cromwell Hall	Cromwell, Conn	Priv.	.....	.....	1880, 12	1877
State Emigrant Insane Asylum	Ward's Island, N. Y.	State	187	148		
Hudson River State Hospital	Poughkeepsie, N. Y.	State	185	200	1878, 232	1872
N. Y. State Lunatic Asylum	Utica, N. Y.	State	580	635	1877, 582	1843
State Lunatic Asylum for Insane Criminals	Auburn, N. Y.	State	86	106	1877, 104	
Willard Asylum for Insane	Willard, N. Y.	State	770	1175	1879, 1502	1869
State Homeop. Asylum for Insane	Middletown, N. Y.	State	27	80	1878, 146	1874
City Asylum for Insane	Ward's Island, N. Y.	City	559	700	1878, 989	1861
Kings County Lunatic Asylum	Flatbush, N. Y.	Co.	718	778	....	1855
City Lunatic Asylum	Blackwell's Isl'd, N. Y.	City	1077	1276	1878, 1234	
Monroe County Asylum	Rochester, N. Y.	Co.	.....	158		
Bloomingdale Asylum	Manhattanville, N. Y.	Corp.	189	189	1878, 188	1821
Providence Asylum	Buffalo, N. Y.	Corp.	.....	75		
Sanford Hall	Flushing, N. Y.	Priv.	27	31	....	1845
Private Asylum	Pleasantville, N. Y.	Priv.	.....	6	1880, 7	
Brigham Hall	Canandaigua, N. Y.	Priv.	72	70	1879, 59	1855
Marshall Infirmary	Troy, N. Y.	.....	91	.....	1878, 110	1859
Asylum for Chronic Insane	Binghamton, N. Y.	State	.....	.....	....	1880
State Lunatic Asylum	Trenton, N. J.	State	653	714	1879, 506	1847
Essex County Lunatic Asylum	Newark, N. J.	Co.	.....	150		
New Jersey State Lunatic Asylum	Morristown, N. J.	State	.....	342	1879, 527	1876
Penn. State Lunatic Asylum	Harrisburg, Penn.	State	408	416	1879, 426	1851
Western Penn. Hospital for Insane	Dixmont, Penn.	State	450	491	1879, 609	1857
State Hospital for the Insane	Danville, Penn.	State	166	260	1878, 360	1872
Department for Insane, Almshouse	Philadelphia, Penn.	City	1023	1027		
Penn. Hospital for the Insane	Philadelphia, Penn.	Corp.	416	419	1878, 406	1841
Friends' Asylum for the Insane	Frankford, Phil., Penn.	Corp.	78	80	1878, 82	1817
Burn Brae	Kelleyville, Penn.	Priv.	.....	.....	1880, 36	1880
State Hospital for the Insane	Warren, Penn.	State	.....	.....	Capacity 750	1880
" " " " "	Norristown, Penn.	State	.....	.....	1880, 611	1880
Maryland Hospital	Catonsville, Md.	State	127	155	1879, 329	1872
Mount Hope Retreat	Baltimore, Md.	Corp.	252	297	1879, 370	1842
Government Hospital for the Insane	Washington, D. C.	Nat'l	620	718	1879, 819	1855
Eastern Lunatic Asylum	Williamsburg, Va.	State	268	294	1879, 323	1773
Western " "	Staunton, Va.	State	334	356	1879, 448	1828
Central Lunatic Hospital (colored)	Richmond, Va.	State	194	243	1879, 223	1870
Hospital for the Insane	Weston, W. Va.	State	284	350	1878, 415	1864
Insane Asylum for North Carolina	Raleigh, N. C.	State	242	250	1879, 277	1856
Asylum for the Insane	Columbia, S. C.	State	309	300	1879, 375	1827
Lunatic Asylum	Milledgeville, Ga.	State	564	516	1879, 754	1841
Hospital for the Insane	Tuscaloosa, Ala.	State	330	352	1878, 403	1860
Lunatic Asylum	Jackson, Miss	State	304	325	1878, 401	1855
" "	Jackson, La.	State	165	167	1879, 210	
Hospital for the Insane	Austin, Tex.	State	115	152	1878, 275	1861
" " " "	Nashville, Tenn.	State	372	375	1878, 376	1848
Eastern Kentucky Lunatic Asylum	Lexington, Ky.	State	528	526	1879, 549	1824
Western " " "	Hopkinsville, Ky.	State	322	350	1879, 376	1854
Central " " "	Anchorage, Ky.	State	155	270	1878, 341	1873
Cleveland Hospital for Insane	Newburg, O.	State	250	560	1880, 625	1855
Western " " "	Dayton, O.	State	560	600	1879, 599	1855
South-eastern " " "	Athens, O	State	.....	605	1879, 571	1874
North-western " " "	Toledo, O.	State	.....	111	1879, 115	
Central Ohio Asylum	Columbus, O.	State	.....	.....	1879, 830	1877
Longview Asylum	Carthage, O.	City	1872. 577	600	1879, 683	1860
Cincinnati Sanitarium	College Hill, O.	Priv.	.....	50	1879, 44	
Asylum for the Insane	Kalamazoo, Mich.	State	1872. 305	550	1878, 497	1859
Eastern Mich. Asylum for Insane	Pontiac, Mich	State	.....	.....	1878, 306	1878
Hospital for the Insane	Indianapolis, Ind.	State	474	500	1876, 600	1848
Central Hospital for the Insane	Jacksonville, Ill.	State	472	450	1878, 534	1848
Southern " " " "	Anna, Ill	State	.....	200	1878, 458	1874
Northern " " " "	Elgin, Ill.	State	172	200	1878, 525	1871
Cook County Asylum	Chicago, Ill.	Co.	.....	300		
Bellevue Place	Batavia, Ill.	Priv.	30	20	.....	1867
Oak Lawn	Jacksonville, Ill.	Priv.	.....	12		
Hospital for the Insane	Mendota, Wis.	State	314	375	1879, 507	1860
Northern Hospital for the Insane	Oshkosh, Wis.	State	205	550	1879, 546	1862
Hospital for the Insane	Mount Pleasant, Iowa.	State	495	550	1877, 608	1861
" " " "	Independence, Iowa.	State	113	251	1879, 450	1872
" " " "	St. Peter, Minn.	State	303	517	1878, 660	1866
Lunatic Asylum No. 1	Fulton, Mo.	State	1870. 303	350	1878, 410	1851
" " " 2	St. Joseph, Mo.	State	.....	250	1878, 216	
St. Louis County Asylum	St. Louis, Mo.	Co.	299	320	1879, 322	1868
St. Vincent's Asylum	St. Louis, Mo.	Corp.	213	137		
Lunatic Asylum	Ossawattamie, Kan.	State	1872. 178	111	1878, 267	1866
Hospital for the Insane	Lincoln, Neb.	State	53	80	1878, 120	1871
Asylum for the Insane	Stockton, Cal.	State	1156	1302	1878, 1127	1853
" " " "	Napa, Cal.	State	.....	189	1878, 714	1875
Lunatic Asylum	Portland, Oregon	State	167	200	1878, 235	
" "	Steilacoom, Wash. T.	State	36	100	1879, 75	1872

INSANITY BEFORE THE LAW. See Lunacy.

INSCRIPTIONS, a term applied to all writings engraved or written on objects or monuments not of the class of books, principally on hard materials, such as metals, stones, and other substances. They are a class of documents of the highest interest and importance to history and philology, and a consideration of them embraces the whole scope of history, language, and art. The oldest (excepting those of China) are probably the Egyptian inscriptions found in the pyramids (see Pyramids), of about 2000 B.C.; to which succeed those of Assyria and Babylonia, reaching nearly as high an antiquity (see Cuneiform Characters); which are succeeded by the Persian and Median, 525 B.C., and along with which prevailed the Phenician, probably about 700 B.C. (see Phenicia); which were in their turn succeeded by the Greek, between 500 and 600 B.C., or even earlier; which were succeeded by the Etruscan and Roman, in 400–300 B.C., and continued through the middle ages in Europe to the present day. See Paleography. In the east, the oldest inscriptions are those of China, which ascend to 2278 B.C.; those of India not being older than 315 B.C., or the age of Sandracottus; while the antiquity of the hieroglyphical inscriptions of Central America cannot be determined. Of many ancient nations, the history and language are found in inscriptions only, as in the case of Lycia and Etruria, and all official inscriptions have a certain authority, from their contemporaneous nature, and the care with which they were executed.

Before the invention of paper or other light substances for the record of events, public acts, devotions, and other documents were inscribed on *bronze,* as the early treaties and dedications of the Greeks, or even lead, as certain small rolls of imprecation and others found in Greece; gold plates were inscribed and placed in foundations under the temples, as that of Canopus show; the *exequaturs* of consuls among the Greeks, and the discharges of the Roman soldiery, were inscribed on bronze tables; while charms, amulets, and other formulæ were occasionally inscribed on metals. The numerous inscriptions known, probably amounting to half a million, have been classed under public or official acts, tables of magistrates, military titles, lists of magistrates, those relating to the gymnasia or games, honors rendered to emperors or men, donations, rites, private and sepulchral, comprising epitaphs, some in elegiac and heroic verse, and numerous minor inscriptions on gems, vases, and other objects of ancient art, on wax tablets or *pugillaria,* and the scrawls discovered on the walls of public and private edifices, as at Pompeii and elsewhere. The study of the letters and their form will be seen under Alphabet; that of the different languages and the mode of deciphering, under their respective heads. Those found upon coins will be mentioned in Numismatics. The most remarkable inscriptions are the trilingual inscription of Rosetta, that of Shalmanazer on the obelisk of Nimrud, and the cylinder of Sennacherib; the trilingual inscription of Darius I. on the rock at Behistun; the Greek inscription of the soldiers of Psammetichus at Ibsamboul, and of the bronze helmet dedicated by Hiero I. to the Olympian Jupiter; the inscription on the coffin of the Cyprian king Asmumazer; the Etruscan inscription called the Eugubine tables; that of Mummius, the conqueror of Corinth, at Rome, and the will of Augustus at Ancyra; the inscription of the Ethiopian monarch Silco; the old monument of Yu, and the inscription of Se-gan-fu, recording the arrival of Christianity in China (631 A.D.); the inscriptions of Chandragupta and Asoka in India. The study of inscriptions is so difficult that it has formed a special branch of scholarship, such as decipherment for those of which the language has been lost, or epigraphy for the dead languages. Special collections of the inscriptions of different localities, and general ones, have been made of those in the same languages as Assyrian, Greek, Etruscan, Oscan, and Latin, by Gruter, Muratori, Böckh, Franz, Orellius, Mommsen, Letronne, Lebas, and others. Inscriptions have also engaged the scholarship and attention of the most accomplished philologists, with various success, from the end of the 17th century. They have been forged by Fourmont and others.—Gruter, *Thesaurus Inscr.* (fo. 1603–63); Muratori, *Novus Thesaurus* (4to, 1739); Kellerman, *Spec. Epigraph.* (1841); Mommsen, *Inscript. Neapol.* (fo. 1852); Böckh and Franz, *Corpus Inscript. Græc.;* Osann, *Sylloge* (1822); Lepsius, *Inscr. Umbr. et Osc.;* Gesenius, *Script. Ling. Phœn ;* Garucci, *Graffiti.*

INSECT FERTILIZATION. See Fecundation.

INSECTIV'ORA (Lat. insect-eating), in Cuvier's system of zoology, one of the divisions of the mammalian order *carnaria* (q.v.). None of the insectivora are of large size; most of them are small timid creatures, generally nocturnal in their habits, and useful in the economy of nature chiefly in preventing the undue increase of worm and insect tribes. Although many of them are not exclusively insectivorous, all of them have the summits of the molar teeth beset with small conical tubercles, as for the purpose of breaking up the hard coverings of insect prey. Their dentition is otherwise very different in the different families. Their legs are short. They all place the whole sole of the foot on the ground. The snout is generally elongated. The families of *talpidæ* (moles, etc.), *soricidæ* (shrews, etc.), *erinaceadæ* (hedgehogs, etc.), and *tupaidæ* (banxrings) are referred to insectivora. The insectivora, although in some respects very different from the *cheiroptera,* exhibit an affinity to them in others.

INSECTIVOROUS BIRDS. Recent investigations, especially in the western states and territories, have brought more fully into notice the valuable qualities of certain

birds, as to their power of decreasing the multiplication of destructive insects. Although ornithologists have long given their advice and warnings, it has been the mistake of a considerable portion of the agricultural population of the country to believe that certain birds, which are called graminivorous, committed sufficient depredations to make them obnoxious, and therefore they have destroyed them. These fears may be well founded in a few instances, in regard to those predatory birds which destroy other and valuable birds, as the crow, the crow-blackbird, and the blue jay. Unfortunately these cunning birds are not the ones which have come in for the greatest share of condemnation. The blue-headed grackle, or Brewer's blackbird, a perfectly innocent little creature, and a friend of man, has been destroyed in the western country in countless numbers because it visited the cornfields in search of a kind of grub which lived upon the ears of corn. To get the grub the bird picked open the husks at the end of the ear, or through them at the sides. This did little damage to the car, which the grub would have destroyed. But the farmer, fearful that the birds were carrying off his crop, soaked grain in strychnine, and strewing it upon the ground, caused the birds to die by the million. Prof. Samuel Aughey, of Lincoln, Neb., has furnished a list of locust-feeding birds for the first annual report of the U. S. entomological commission, which is extremely interesting and instructive, and from his chapter the notice of Brewer's blackbird above given is taken. It seems that this bird is purely insectivorous and does not live upon grain or seeds at all, unless it cannot get insects, grubs, or worms. Prof. Aughey states that the robin is not abundant in Nebraska, but is slowly increasing. A few were killed to ascertain the contents of their stomachs. Out of six, four of them had 51 to 59 locusts in their crops, and less than half that number of other insects. This was in the years 1865, 1875, and 1877, not great locust years, as 1874. A number of wood thrushes were bought from boys and their stomachs found filled with locusts (1865–75). The family of wrens were found particularly the friends of the farmer in their locust devouring habits. He mentions eight species, the long-billed marsh wren being perhaps the greatest feeder. The parents in one nest were seen to bring 31 locusts from dry bluffs about a mile distant in the space of an hour. The short-billed marsh wren was not detected in locust carrying, but is believed to be a locust feeder. The house wren feeds upon quantities of small locusts, but was never seen to capture a full grown insect. The family *sylvicolidæ*, or American warblers, of the same order (*insessores*), of which prof. Aughey mentions some 30 different species belonging to different genera, are nearly all great locust eaters. The golden warbler was a curious exception, as its stomach contained only half as many locusts as of other insects, while the converse was the rule with other species. The swallows and sparrows were found to be great locust eaters. The cliff-swallow, or cave-swallow, is perhaps the principal insect destroyer, on account of its numbers. It breeds on the sides of cliffs and under the caves of buildings. U. S. geologist Hayden has observed great numbers of these birds along the Missouri river, especially along the chalk bluffs near Niobrara, and prof. Aughey also observed them in the same locality in 1877. Three miles e. of the town on the sides of a perpendicular chalk rock he counted 2,100 nests of the cliff-swallow. They eat countless numbers of locusts. Of the family *ampelidæ*, or *bombycillidæ*, or wax-wing family, the "brotherly love" vireo, a common bird in eastern Nebraska, eats vast numbers of locusts and other insects, and the warbling vireo, abundant in n.w. Nebraska, is quite as great a locust and other insect feeder. The shrike family (*lanidæ*), particularly the white-rumped shrike, which are quite abundant in Nebraska, are great locust eaters, but in their stomachs were also found portions of other insectivorous birds. They are, therefore, not to be highly commended. Among the American starlings, the bobolink, reed-bird, or rice-bird, is very abundant in Nebraska, where it breeds. It is popularly supposed to be exclusively graminivorous, but prof. Aughey discovered that on occasions it was highly insectivorous, as their stomachs, whenever examined, were found to contain, along with seeds, many locusts. The king bird, or bee martin, as well as many other "flycatchers," of which 10 or more species are mentioned, are, of course, highly insectivorous, but where locusts abound these insects are their favorite food, the phœbe bird particularly being a locust-gormand. The cuckoos, which are shot and sold by the butchers, were often found to have over 45 locusts in their stomachs, none less than 37. The golden-winged woodpecker, or flicker, was often found with no seeds in its stomach. Eight flickers were bought from a sportsman who had shot them in a wood in Dixon county, and their stomachs were filled with locusts and other insects. Two of them had eight grains, four of them from two to six grains, and two of them had none, in their stomachs. This beautiful bird, the robin, and even the merry bobolink, are hunted and shot, even in our eastern states, where they are not near plentiful enough, by unthinking men, and they ought to be protected. Mr. Cyrus Thomas, one of the members of the entomological commission for examining into the subject of the Rocky mountain locust, in chap. xii. of the report above mentioned, on "the usefulness of birds," maintains that, with very few exceptions, the whole class of birds are the friends of man. We know that many of them are his companions, and certainly more would be if he did not lay his destructive hands upon them. See BIRDS and ORNITHOLOGY.

INSECTIV'OROUS PLANTS. See DIONÆA.

INSECTS, *Insecta*, one of the classes of *articulata* (q.v.), or articulated animals, of the division having articulated members. All the articulata having articulated members were included by Linnæus in the class of insects; but the *crustacea* and *arachnida* were soon separated from it, and afterwards the *myriapoda*. See these heads. This restricted application of the term insect corresponds more nearly with its popular use, and so well accords with its derivation, that it may be regarded as one of the most appropriate names employed in natural history. It is from a Latin word, signifying *cut into;* a derivation exactly answering to that of the Greek *entoma*, from which the science having insects for its subject receives the name of entomology. Insects, a natural and extremely well defined class of organized beings, are remarkable, in their mature or *perfect* state, for the division of their bodies into three very distinct portions—the *head*, *thorax*, and *abdomen;* the divisions being often so deep, that the slenderness to which the body is there reduced cannot be contemplated without admiration.

The body of an insect, as of all the other articulata, is composed of a certain number of rings. One of these forms the head; or, if the head ought to be regarded as really composed of several rings, modified and condensed together, as the skull of vertebrate animals is formed of modified vertebræ, yet no distinction of rings appears. The eyes, the antennæ, and the organs of the mouth, are the most conspicuous organs connected with the head.

The thorax is formed of three rings, closely combined, but easily distinguishable. The first is the *prothorax;* the second, the *mesothorax;* the third, the *metathorax* (Gr. *pro*, before; *mesos*, middle; and *meta*, after). Of these rings, one or another is often remarkably developed. The legs and wings are attached to the thorax. Insects have six legs, and generally four or two wings, never any other number; but some are wingless, and this is the case not only in all the insects of certain groups, but also in particular species of groups ordinarily winged, and is sometimes even a distinction of sex, as in the glow-worm. The first pair of legs are attached to the prothorax; the second, to the mesothorax; and the third, to the metathorax. The first pair of wings are attached to the mesothorax; the second, to the metathorax. In dipterous (two-winged) insects, the place of the second pair of wings is occupied by two small organs—little threads, terminated by a knob—called balancers (*halteres*), the use of which is not well known.

The abdomen consists of nine rings, or of fewer; as some are often obliterated, or modified, to form various appendages. It contains the principal viscera. In it, the sexual organs are situated. The rings of the abdomen are much more separate and movable than those of the thorax. The terminal rings of the females of some groups form an oviduct or ovipositor, which is sometimes capable of being employed as a borer, to make a place for the eggs in the animal or vegetable organism destined to receive them, and which in wasps and bees is replaced by a sting.

The nervous system of insects, in all their stages of existence, exhibits the general characters noticed as belonging to the *articulata* (q.v.). There is a *brain*, or ganglion of the head, from which arise the nerves of the eyes, antennæ, and mouth.

The rings of which the body of an insect is composed appear most distinctly in the external covering. This is in most parts hard, but more or less flexible, of a horn-like substance, chiefly composed of *chitin* (q.v.). The external covering of insects is the principal framework of their bodies, and to it the muscles are attached. The external covering of each ring is more or less distinctly divided into two parts—a dorsal and a ventral —the connection at the sides being effected by a softer and more flexible membrane, a still softer membrane connecting the rings of the abdomen, so as to allow considerable freedom of motion; whilst between the rings are minute pores called *stigmata* or *spiracles*, by which air is admitted to the *tracheæ* or air-tubes (q.v.), the organs of respiration.

Insects respire neither by means of lungs nor of gills, and the blood is not brought to a particular part of the body for aëration, as by circulation in vertebrate and many invertebrate animals, but the air which enters by the breathing-pores is conveyed by tubes to all parts of the body, and even through the delicate structure of the wings, so that the whole frame is rendered more light by the very means employed to maintain and increase muscular energy. Respiration is extremely active in insects; they consume a great quantity of oxygen in proportion to their size, and they display, in general, an extraordinary degree of activity and muscular energy. The flight of very many kinds is far more rapid in proportion to their size than that of birds; others display a similar superiority of powers in running, swimming, or digging and burrowing; whilst the leaping of many, as fleas and grasshoppers, and the springing of others, as cheesehoppers, prodigiously exceeds anything of which any vertebrate animal is capable. The respiration of aquatic insects takes place in the same manner as that of other insects, and they come to the surface of the water for fresh supplies of air.

The blood of insects is thin and colorless. It is not everywhere inclosed in vessels, butis freely diffused in interstices between the muscles and other organs, and in the visceral cavity. It contains globules or corpuscles of determinate shape. How far the *dorsal vessel* (see ARTICULATA) should be regarded as a *heart*, is not fully determined; but by its contractions and dilatations, a constant motion of the blood is maintained.

The members of insects have generally a structure analogous to that of the trunk, in being composed of articulations, the hard and solid part of which is the external cover-

ing. This appears very perfectly in the legs, the antennæ, and the palpi, but not in the wings.

The legs of insects consist of two principal parts, the thigh (*femur*) and shank (*tibia*), with two smaller articulations, the *coxa* and *trochanter*, interposed between the body and the thigh, and at the extremity of the shank, a set of three, four, or five small articulations, called the *tarsus*. The last segment of the tarsus in terrestrial insects is generally terminated by a pair of hooks or little claws; and many dipterous insects, as the house-fly (q.v.), have disks and suckers for taking hold of smooth surfaces.

The wings of insects are often very large in proportion to the size of the body, and the rings of the thorax are soldered together, and supported by supplementary pieces, to give firm support to them, and to the powerful muscles necessary for their action. The hard covering of the body of an insect consists, like the skin of vertebrate animals, of three layers, and the membranes of the wings are filmy expansions of the outermost of these, the epidermis. The ribs or nervures in the wings of insects are tubes, of which one of the uses is the conveying of air even to the extremities of the wings. The forms of the wings are very various; some of the more important diversities being characteristic of different orders. The bodies of insects are often very much covered with hairs, which are often very long and thick in proportion to the size of the animal, and on the wings of butterflies and other *lepidoptera* are flattened and expanded so as to form scales (see BUTTERFLY) often richly colored, and also, by reason of very fine parallel striæ, with which they are marked, displaying an admirable iridescence or reflection of evanescent prismatic colors in changing light. The first pair of wings in coleopterous insects or beetles is represented by a pair of hard chitinous *elytra* (Gr. coverings), or wing-covers. *Orthopterous* insects have softer leathery or parchment-like elytra.

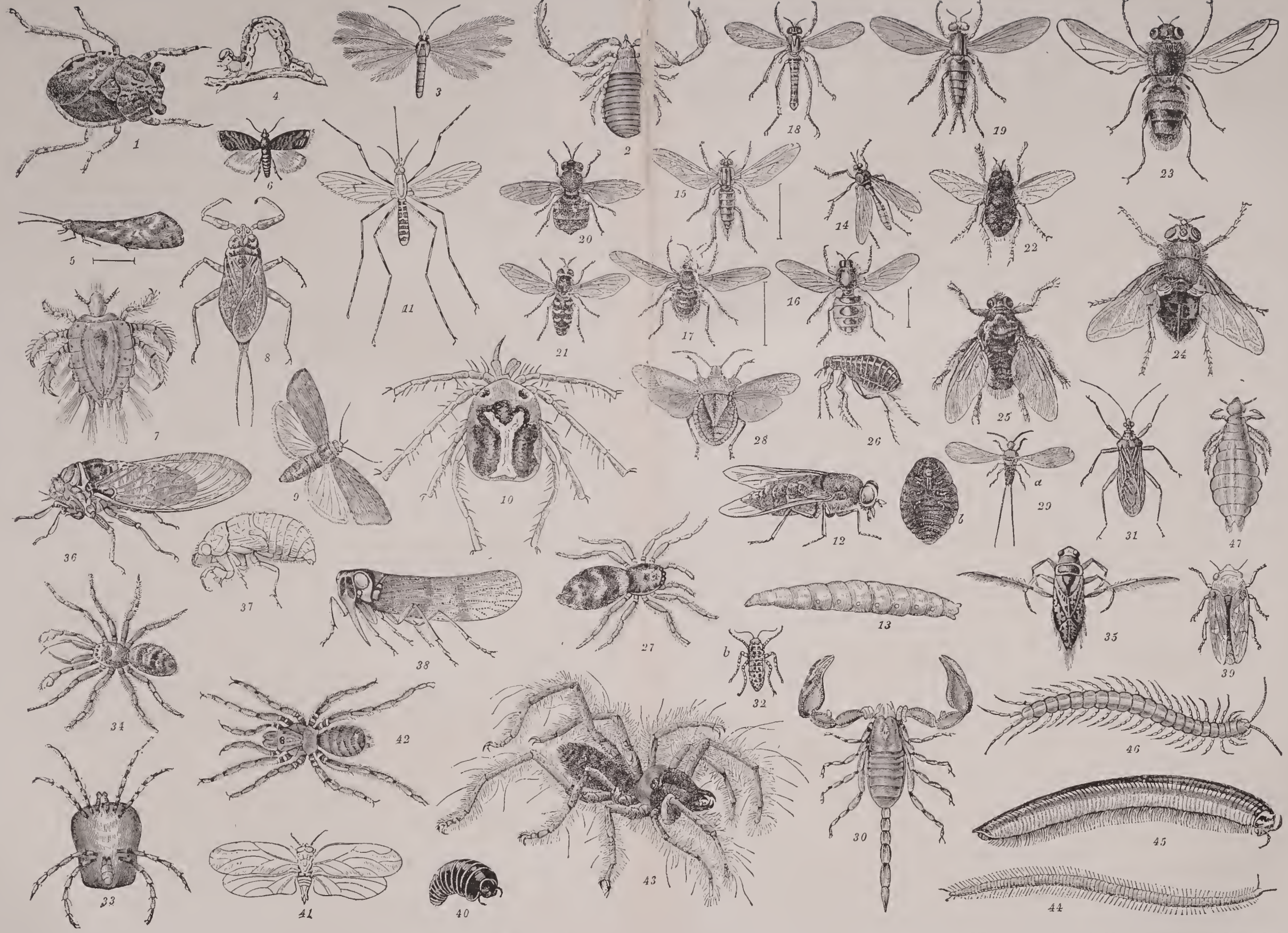
Insects feed on very different kinds of food; some prey on other insects, some devour animal, and some vegetable substances, some suck the juices of animals, some the juices of plants or the honey of their flowers. The structure of the mouth varies accordingly, and the digestive organs also vary. The mouth is either adapted for gnawing, cutting, and tearing, or merely for sucking, or it is adapted partially for both of these purposes. The parts of a mandibulate mouth are an upper lip (*labrum*) and an under lip (*labium*), moving vertically; and an upper pair of jaws or mandibles (*mandibulæ*) and a lower pair of jaws (*maxillæ*), moving horizontally. The upper and under lip meet when the mouth is shut. Both are as hard as the jaws. The lower lip is sometimes regarded as consisting of two parts, called the chin (*mentum*), and the tongue (*lingua*), which is more membraneous and fleshy, and reposes on the inside of the chin. The upper jaws or mandibles are usually powerful, and often strongly toothed and hooked, sometimes furnished with cutting edges like sharp scissors, and sometimes adapted for bruising and grinding. They are also the instruments which bees and other insects use for their wonderful operations of cutting, tearing, building, plastering, etc. The lower jaws or maxillæ are generally less powerful. In some insects, in which the mandibles are enlarged into great organs of prehension, the maxillæ alone serve for the ordinary use of jaws in eating. To the maxillæ and the lower lip are attached organs called *palpi* or feelers, consisting of a number of minute articulations, supposed to be delicate organs of touch connected with the purposes of the mouth, and distinguished as *maxillary palpi* and *labial palpi*.

The mouths of mandibulate insects are sometimes called *perfect*, and those which exhibit a different character, *imperfect*. The terms, however, are improper—each kind is perfect, according to the purposes for which it is to be used. Yet a correspondence of structure may be traced, so that the parts of the mandibulate mouth may be recognized under various and very remarkable modifications in the mouths of insects which live by suction. Thus the filaments which form the proboscis of butterflies are the maxillæ excessively lengthened, and the cutting parts of the mouth of the flea are the mandibles and maxillæ. The proboscis of flies represents the lower lip.

The alimentary canal of insects is usually more or less convoluted. Between the mouth and the proper digestive stomach, it sometimes exhibits a *crop* (honey-bag of bees) in insects which live by suction, and this is either a dilatation of the lower part of the gullet or a lateral vesicle; sometimes a *gizzard*, with muscular walls, often armed with horny pieces, for trituration of food. The stomach is of a very elongated form. The liver is represented by long slender bile-tubes, four or more in number, which wind around the intestine, and pour their secretion into it, where it originates from the stomach. The salivary glands are generally similar tubes.

The eyes of insects are of two kinds—*simple* or *stemmatic*, and *compound* or *composite*. See EYE. Some insects have only simple eyes (*ocelli*), some have only compound eyes; but the greater number have two large compound eyes on the sides of the head, and three small simple eyes between them. Compound eyes occur in insects only in their mature or perfect state; the eyes of larvæ are simple.

The antennæ (q.v.) are generally regarded as organs of touch. They are attached to the head in front of the eyes, and are always present, and always two in number. They exhibit a vast variety of different forms. Insects make much use of their antennæ to investigate surrounding objects by contact, although, if this is their sole use, it is not very easy to assign any probable reason for some of their forms; but there is not much plausibility in the conjectures which assign to them a part in the exercise of the senses of hearing and smell, although these senses and taste are evidently enjoyed by insects,



Insects.—1. Carrion-beetle. 2. Book-tick. 3. Feather-moth. 4, 32. Geometra brumata. 5. Common moth (tinea). 6. Apple-fly. 7. Crab-louse. 8. Water-scorpion. 9. Honey-moth. 10. Mussel-tick. 11. Gnat (culex). 12. Gad-fly. 13. Maggot of the same. 14. Hawk-fly. 15. Snipe-fly. 16. Bluebottle. 17. Common fly. 18. Ant-fly. 19. Feather-fly. 20. Battle-fly. 21. Bombyline. 22. Murder-fly. 23. Ox-fly. 24. Muck-fly. 25. Horse-fly. 26. Flea. 27, 34. Jumping spider. 28. Tree-bug. 29. Cochineal. 30. Scorpion. 31. Tumble-bug. 33. Cochineal-louse. 35. Boat-fly. 36. Singing cicada. 37. Larva of the same. 38. Boring cicada. 39. Water cicada. 40. Scale-louse. 41. Fig-tree bug. 42. Mygale. 43. Scorpion-spider. 44. Thousand-legs. 45. Milleped. 46. Centipede. 47. Common head-louse.

or at least by many insects in great perfection, and their particular seat and organs are not well ascertained. The sense of smell appears to be of great importance to insects in guiding them to their food. The sexes are distinct in all insects, and very remarkable differences are often exhibited by the males and females of the same species, in size, color, and the form and structure of parts that have no immediate connection with the reproductive system. What are called *neuters* in some tribes are imperfectly developed females. The connection of the sexes takes place only once in the lives of insects, and a remarkable provision is made in the female for the consequent fertilization of eggs that in some—as bees—continue for a long time afterwards to be successively developed.

Insects are generally oviparous; a few are ovoviviparous. The *aphides* afford an instance of what has been called the alternation of generations. The greater number of insects take no care of their eggs after depositing them, and many themselves pass out of existence before the eggs are hatched; the chief part of the lives of insects being generally spent in their immature states, and their brief existence in a perfect state serving mainly for the propagation of their species. Thus many insect tribes disappear entirely on the approach of winter, their eggs awaiting the warmth of spring or summer to be hatched. The case is very different, however, with bees, ants, earwigs, and some others, which carefully tend and rear their young.—The number of eggs laid by insects is very various, but often very great. The flea, indeed, only lays about 12, and many dipterous and coleopterous insects about 50; but the silkworm produces from 500 to 2,000; a single queen bee is supposed to lay 40,000 or 50,000 in a season; and the female termite or white ant, laying about 60 eggs in a minute and for a period of very considerable though unknown duration, exceeds as to the number of her eggs any other known animal in the world.

The eggs of insects are generally white, yellow, or green; they are of very various shapes—round, cylindrical, conical, lenticular, etc.; they are sometimes smooth, sometimes beautifully sculptured.

The stage of development at which insects come forth from the egg is very different in different tribes: in some they appear as footless worms; in others they have rudimentary feet, but still with very little power of locomotion; in others, besides little claws representing the six feet of the perfect insect, there are on the abdominal segments of the worm-like body fleshy tubercles serving as feet; in others still, the legs are well developed, and the insect on issuing from the egg differs little from the perfect insect, except in the want of wings; whilst, finally, in a comparatively small number (lice, etc.), there is no obvious difference except in size. Similar differences of the degree of development appear in the mouth, eyes, and other organs. Hence the subsequent changes by which the mature state is reached are very different in degree; and insects being primarily divided into those which undergo and those which do not undergo metamorphosis, some of the former are commonly spoken of as undergoing *complete* and others *incomplete* metamorphosis. In the first state of insect life the insect is called a *larva* (q.v.). Grubs, caterpillars, and maggots are the larvæ of different orders of insects. From this state it passes into that of a *pupa* (q.v.), or nymph—a *chrysalis* or *aurelia* is the *pupa* of a lepidopterous insect—and finally it becomes an *imago*, or perfect insect.

The metamorphoses or transformations of insects have always been regarded with great admiration. A worm inhabiting a muddy pool becomes a winged creature that sports in the air. A crawling caterpillar that ravenously devours some kind of herbage with its horny jaws, eating vastly more in proportion to its size than an ox, is converted into a splendid butterfly, flitting from flower to flower and feeding only on nectareous juices. The intermediate or pupa state only adds to the wonder. The caterpillar, after several *moltings*, or changes of skin, and when it has attained its utmost size, ceases from eating, perhaps fixes itself under a leaf, becomes incased in a horny covering, as in a second egg, and from this it finally breaks forth a moth or a butterfly. Many larvæ also, when about to change into the pupa state, spin cocoons (q.v.) in which they envelop themselves by means of *spinnerets* on the under-lip, through which a viscid secretion passes in fine threads which harden into silk. But whilst the pupæ of many insects are motionless, or nearly so, and eat no food whatever, the pupæ of other insects, as dragonflies, are active and voracious. The intermediate or pupa state often differs little from the larva state, except in the possession of wings, or from the perfect state, except in the wings being merely rudimentary and still unfit for flight.

An opinion at one time prevailed that the successive envelopes of the larva were all contained from the beginning within the first, within them the covering of the pupa, and within it the perfect insect. This extraordinary fancy has given place to the belief, established on sufficient observation, that the envelopes which the growing larva successively casts off are merely a hard, thick, extravascular, and unextensile epidermis; that the jaws, claws, etc., of the larva, with which it parts when it becomes a pupa, in the case of insects undergoing complete metamorphosis are connected with the epidermis; and that the covering of the pupa is a new secretion. Discoveries, however, do not render less marvelous, but only more admirable, the changes which take place. Of these, some of the most important are in the organs of the mouth, the digestive organs, and the nervous system.

It is not certain that any insect has a voice or cry, although the origin of the sounds produced by some of them, as the plaintive, squeaking note of the death's-head moth, is

not known. The sounds of which we do know the origin are not produced by the mouth or throat. See GRASSHOPPER, DEATH-WATCH, and CICADA.—The *humming* or *buzzing* of insects during flight has been commonly ascribed to the extremely rapid vibrations of their wings. Burmeister, however, supposes it to be produced by vibratory laminæ in the respiratory spiracles of the thorax, acted upon by the forcible emission of air during the violent muscular action necessary for flight.

Insects are all animals of small size, and many of them are minute. The largest species are tropical, and insects of all sizes abound in warm far more than in cold climates. The insects of the polar regions are comparatively few, and are to be seen only during summer; those of them whose whole existence is not comprised within a single year spending the winter, as very many insects of temperate climates also do, in a state of torpidity. All insects are very fond of heat, and many which do not become completely torpid in cold weather become partially so. It is only in warm weather that insects display their greatest activity. As to their geographical distribution, insects are found in all countries, to the utmost alpine and polar limits of vegetable life. Many kinds are peculiar to particular climates and countries. The insects of the Malayan archipelago and of Australia, like their other natural productions, are generally very different from those of other parts of the world. The insects of elevated mountainous regions within the tropics generally resemble those of the temperate and frigid zones, but are seldom the same. The multitude of species of insects is very great. The species of coleopterous insects alone, or beetles, are more numerous than all those of vertebrated animals together.

A few insects are important for their usefulness to man, and a greater number for the injuries which they inflict. Of the former, bees and silkworms deserve to be first named; and after them the cochineal insect and cantharides or blistering-flies. There are a few others to which we are indebted for substances useful in medicine and the arts, as kermes, lac, galls, etc. Of the injuries inflicted by insects, the most serious are those caused by the destruction of herbage and crops, as by the ravages of locusts, of some kinds of caterpillars, and of numerous tribes of coleopterous and dipterous insects. See CORN-FLY, TURNIP-FLY, etc.

The primary division of insects into those which do not and those which do undergo metamorphosis (*ametabolia* and *metabolia* of Leach), has been already noticed. The former are divided into the orders *thysanura* (q.v.) and *parasita* (q.v.) or *anoplura*, and are all included in the order *aptera* (see APTEROUS INSECTS) or wingless insects of Linnæus. The insects undergoing metamorphosis, which are far more numerous, are divided into two great groups, *mandibulata* and *haustellata*, the former having the mouth fitted for mastication, the latter for suction. The *mandibulata* form the universally recognized orders *coleoptera*, *orthoptera*, including *dermoptera* of some entomologists, *neuroptera*, and *hymenoptera;* the *haustellata* form the orders *hemiptera*, including *homoptera* of some, *lepidoptera*, *strepsiptera*, *diptera*, and *suctoria* (*aphaniptera* of some). See these heads.

Fossil Insects.—Several causes conspire to make the remains of insects in the stratified rocks comparatively rare, such as their possession of the power of flight, their soft and speedily decomposing bodies, and the extent to which they are preyed upon by other animals. That they were abundant during some periods is, however, very evident. In the lower lias several bands of limestone occur, which, from the abundance of insect remains contained in them, have been called "insect limestone." They are crowded with the wing-cases of several genera of coleoptera, and insects almost entire are frequently found. The strongly nerved wings of some neuroptera are beautifully perfect. In the eocene strata at Auvergne, a considerable thickness of limestone is formed entirely of the indusia or cases of the aquatic larva of a neuropterous insect. Amber from tertiary strata often abounds in insects captured and inclosed while this petrified gum was in its primitive fluid condition, and now made permanent in the transparent stone, with every minute detail of structure beautifully preserved.

The oldest strata in which insects remains have been observed belong to the carboniferous period. The remains consist of fragments of neuroptera, orthoptera, and coleoptera.

The lower lias insects belong to various orders; they are generally of a small size, apparently indicating a temperate climate. In the upper lias they are not infrequent; a few specimens have been found in the oolite proper; and in the wealden both land and water forms occur. None have been noticed as yet in the deep-sea rocks of the cretaceous period, but in the newer tertiary strata they are common, especially in the amber from the lignite beds of Germany and in the cavern deposits. It is worthy of remark that no new forms have been observed; all are either referred to living genera or placed in new yet nearly allied genera.

INSESSO'RES (Lat. perchers), or PERCHING BIRDS, an order of birds called *passerine* (sparrow-like) *birds* by Cuvier. In respect of the number of species which it contains, it is by far the largest order of the whole class of birds. Cuvier says: "Its character seems at first sight purely negative, for it embraces all those birds which are neither swimmers, waders, climbers, rapacious, nor gallinaceous. Nevertheless, by comparing them, a very great mutual resemblance of structure becomes perceptible." A principle

characteristic is found in the structute of the feet, which are particularly adapted for perching on the branches of trees, and have three toes before and one behind, the hind toe on the same level with the others. The legs are neither very long nor very strong; nor are the claws in general very long or very sharp. The wings are often long, and the power of flight very considerable, but this is not always the case. The neck is not long. The bill exhibits many varieties in length, thickness, etc., being very short and thick in some, very slender in others, but never exhibits the characteristic peculiarities of the accipitrine beak, although there is an approach to them in the shrikes, which are a connecting link between the two orders. The insessores with short strong beaks are principally granivorous, those with slender beaks insectivorous; but very many adapt themselves almost indifferently to both kinds of food. Some feed on pulpy fruits; some on vegetable juices; some chiefly on carrion. The stomach is a muscular gizzard. To the order insessores belongs the singing birds, and throughout the whole order a variously complicated structure of the lower larynx prevails. The insessores pair, but the attachment of the sexes in most of them seems to endure only for a single season. They generally build interwoven nests, and lay numerous eggs. The young are always naked and blind on coming forth from the egg.—The insessores are divided into four great tribes or sections, *dentirostref*, *conirostres*, *tenuirostres*, and *fissirostres*. See these heads.

INSOLVENCY, or BANKRUPTCY, is the state of a person declared to be unable to pay his debts. Insolvency is a term which in England had long been confined to the case of a non-trader who was unable to pay his debts. All who were *traders* (a term which was not always easily defined) were said, in the same circumstances, to be, not insolvent, but bankrupt. Different courts, called the bankrupt and insolvent courts, were applicable respectively to these two great divisions of mankind, traders and non-traders, and the chief points of difference in the procedure were these. In the case of traders, the court of bankruptcy was the court to which they or their creditors applied for its summary intervention. That court, whenever a man who was a trader was unable to pay his debts—certain tests of which inability, called acts of bankruptcy, were assumed as infallible symptoms—on the application of a creditor, took forcible possession of his property or his assets of every kind and denomination, converted these into money, and distributed the produce impartially among the creditors, according to certain rules, at the joint expense of the creditors. In the course of doing this, the court required the bankrupt to state all the property he had, where it was, and to give explanations as to what had been lately lost; and it was a crime for him to conceal or make away with any part of his property to the prejudice of this impartial distribution. The creditors also came in and proved their debts against his estate, thereby showing their title to share in it. In this way the debtor was entirely stripped of everything (with a few trifling exceptions) which he had, and which was salable; and, on the other hand, he received a certificate which entirely cleared him of the incumbrance of his past debts for ever—freed him not only from imprisonment, but even from the liability to pay more in future; should he afterwards become rich; and he could thus begin the world anew.

On the other hand, the non-traders, who consisted of country gentlemen, professional men, gentlemen at large, and nondescripts of every degree who were not traders, fell under the care of the insolvent court. These non-traders petitioned the court voluntarily, instead of their creditors doing so, as was the case in the bankrupt court, and they of course put off this application till the last, when they were in prison, though they might also petition before any creditor put them in prison. The sole condition on which the insolvent court granted them its protection, and discharged them from prison, was, that they should not only give up all their property, but state fully all the debts and liabilities they had incurred. If they did this satisfactorily, the court relieved them from imprisonment, which was the most obnoxious of their terrors, but did not entirely free them from the debt they had incurred. On the contrary, they were still liable for their debts; and if ever they should in future become rich enough to pay twenty shillings in the pound, they were still held liable to make up that amount. This contingency, however, seldom happened, and, moreover, when it did happen, considerable leniency was shown to the debtor, so that practically, both in bankruptcy and insolvency, the debtor was more or less whitewashed, and was at least saved from imprisonment.

Important changes were made in the practice of bankruptcy by the act of 1869, 33 and 34 Vict. c. 71, which repealed the prior enactments and rendered the law more uniform. Under that act non-traders as well as traders may be made bankrupts; and even peers of the realm not only may be made bankrupt, but, on being declared so, are at once disqualified from sitting and voting in the house of lords till they have received their discharge. The act 34 and 35 Vict. c. 50, provided that the moment a peer is adjudged a bankrupt his disqualification begins, and he commits a breach of privilege if he sits or votes, or attempts to do so, while thus disqualified. And if he is a representative peer, a new election must take place when he becomes bankrupt.

The bankruptcy laws date from the time of Henry VIII., and the insolvency laws from the time of Elizabeth, the distinction as above explained having always been kept up between them till the old statute, 24 and 25 Vict. c. 134, passed in 1861. By that

statute, the insolvent court was abolished. The court now administering this branch of the law is called the court of bankruptcy, which, as far as the London district is concerned, sits in Basinghall street, city. The London district includes all the area of the ten metropolitan county courts. The rest of England is divided into separate jurisdictions, and the judge of each county court is the ordinary judge. In London, the chief judge in bankruptcy, who is also one of the judges of the chancery division of the high court, sits, and has several registrars under him, to whom he has power to delegate his jurisdiction. Each judge of county courts has also all the jurisdiction of a judge in chancery; and each county court is a branch of the bankruptcy court. There is an appeal from a local court to the chief judge, and then to the high court of appeal. The office of official assignees is abolished, and the creditors choose a trustee to represent their interests and administer the estate, and collect and distribute the effects. The registrar of each county court is an official trustee, but he merely acts till the creditor's trustee is appointed. The comptroller, whose office is in London, keeps a register of all bankruptcies, showing the state and progress of each; and the high bailiff serves all summonses, and inserts advertisements in the *Gazette*.

The tests of bankruptcy, or rather the acts done by a trader which make him liable to be proceeded against as a bankrupt, are technically called acts of bankruptcy. These are; departing the realm—remaining abroad—absenting himself from his dwelling-house—keeping (himself prisoner in his) house—suffering himself to be outlawed and sued by creditors for debt—or allowing his goods to be taken in execution for debt—executing a fraudulent grant, gift, or conveyance of his lands or goods. If a trader execute a conveyance of his whole property to a trustee for the benefit of his creditors, this will be treated as an act of bankruptcy, if any creditor petition within six months thereafter to make him a bankrupt. And, after a petition has been presented, the paying or giving security to any one creditor, so that he shall receive more than the other creditors, is void and null. If any creditor make an affidavit of debt, and give notice to the trader requiring immediate payment, the court of bankruptcy may order this to be filed, and call on the trader, if he do not *bonâ fide* dispute the debt, to enter into a bond with sureties to pay it in a given time, and refusal or neglect to attend or to pay this is an act of bankruptcy. With regard to a non-trader, the acts of bankruptcy were these: if, with intent to defeat or delay his creditors, he depart the realm, or remain abroad, or make a fraudulent gift, conveyance, or transfer of his real or personal estate; but in these cases the court did not declare him bankrupt until it was shown he had, whether abroad or not, been personally served with notice of the intended application, or at least that every reasonable effort had been made to effect such personal service; that is to say, to put into his hands written notice and full information of what is intended against him. Other acts of bankruptcy, which were applicable to both trader and non-trader alike, were the lying in prison for debt—suffering his goods to be taken for debt—filing a declaration in the court of bankruptcy that he is unable to meet his engagements, provided a petition for adjudication of bankruptcy be filed against him within two months thereafter. The acts of bankruptcy, in all cases, are now the same, and are as at first stated, one being also the filing of a declaration of inability to pay his debts.

The mode in which an adjudication in bankruptcy is conducted in England is as follows: The act of bankruptcy, as already explained, must have occurred within six months before the proceeding is commenced. The first step is a petition to the court. This may be presented either by one or several creditors. If, as is most usual, it is presented by a creditor, then such creditor must have a claim of debt amounting to not less than £50; or if the debt of two creditors amount to £50, they may jointly petition; or if the debt of three creditors amount to £50, they may jointly petition. Such debts may be due under mortgages, securities, or liens, and the costs and interest previously due in respect of such debts count as part of the whole debt. If a person in prison for debt is too poor to pay the fees, he formerly could be allowed to present the petition against himself *in formâ pauperis;* and as a monthly return of all debtors must be forwarded to the bankruptcy court, if prisoners stayed beyond a limited time—viz., if traders beyond a fortnight, and if non-traders beyond two months—without voluntarily petitioning, the court would at once make them bankrupts. But, imprisonment being abolished, creditors now begin the process. On the petition for adjudication of bankruptcy being presented, together with an affidavit of the debt, it is filed in court, and on proof of the particular act of bankruptcy, the court adjudicates the debtor a bankrupt. The court then appoints the official registrar to take possession of the property and premises. Before the adjudication is advertised in the *Gazette*, the debtor is to have notice personally, or by service, at his premises, and a certain number of days, from seven to fourteen, are allowed to him to show cause why the adjudication should not be deemed valid. The bankrupt is then to deliver up all his books and papers on oath to the official registrar. He is bound to give information to the official registrar and the court, and to attend from time to time for that purpose, and he is allowed remuneration for that purpose. A small sum is also allowed for his and his family's maintenance during the proceedings. In general, the bankrupt from this time to the end of the proceedings is free from being arrested by individual creditors, and receives a protection from the court. The petitioning creditor, at his own costs, prosecutes the petition up to the stage when the creditors choose their trustee, when these costs are repaid to him.

Soon after adjudication of bankruptcy, a ten days' notice is given in the *Gazette* to the creditors to meet and appoint a trustee. On this occasion, the creditors must first prove their debts, which they do by their affidavit or oath, together with production of any security or document verifying the debt. All creditors having thus proved their respective debts, have power to choose one or more persons as creditors' trustees; but the court has power to reject for want of security. The creditors may be represented on such occasion by an agent or deputy, whose authority needs no stamp. Creditors may determine whether such trustees shall give security. The court declares the appointment final. From the moment of their appointment, the whole of the bankrupt's real and personal property of every kind vests in them. They can sell it, and in general do every thing which the bankrupt himself could have done. They are accountable to the creditors, and must render frequent accounts, and give explanations, which accounts must be printed and sent to every creditor. They manage and realize the estate and collect the debts, and can compromise claims and sue if needful. The court can summon the bankrupt, his wife, and all persons for examination. A sitting is appointed for every examination of the bankrupt which the court or the trustees may deem necessary. Meanwhile all creditors who have debts must complete the proof. Every creditor may prove his debt by delivering or sending through the general post, to the official registrar—or, if the creditors' trustee has been appointed, then to the latter—a statement of such debt, and of the account of any, and a declaration signed by such creditor appended thereto that such statement is a full, true, and complete statement of account, and that the debt is justly due. If the debt is undefined, and consists of unliquidated damages, then the court orders a jury to be impaneled, either before itself or a court of law, to fix the sum. Debts which have been incurred, but are payable at a future time, may also be proved, and so may contingent debts and liabilities. When wages are due to clerks and servants at the time of the bankruptcy, the court may order a sum not exceeding four months' wages, and not exceeding £50, to be paid in cash; and for any surplus that may be due, the clerk or servant must prove and share with the other creditors. If the other creditors oppose a particular debt, and show it is unfounded, the court will expunge it. When all the examinations necessary of the bankrupt have been gone through, a day is appointed for considering his discharge. A discharge shall not be granted unless it is proved to the court that a dividend of ten shillings in the pound has been paid, or might have been paid, except through the negligence or fraud of the trustee; or that a special resolution of creditors has been passed to the effect that the failure to pay ten shillings in the pound has arisen from circumstances for which he was not responsible, and that they desire that an order of discharge shall be granted to him. And the court may suspend for a time, or withhold altogether, the order of discharge, if the creditors, by special resolution, have decided that the bankrupt has made default in giving up to his creditors all the property required by the act to be given up, or that a prosecution has been commenced against him for some fraudulent offense declared by the debtors act of 1869, 32 and 33 Vict. c. 62. The effect of the discharge is to free the bankrupt entirely from all debts capable of being proved under the bankruptcy. The creditors have it in their power to determine whether any and what allowance should be made to the bankrupt up to and upon his discharge.

A debtor who is unable to meet the demands of his creditors may, instead of leaving them to commence proceedings in bankruptcy, call them all together, and lay a statement of his affairs before them, when those present are to decide whether the estate shall be wound up by arrangement. Due notice of this must, however, have been given to all creditors whose debts exceed £10. The debtor must also attend and answer all questions. If the majority of creditors agree, they may thus liquidate the estate by arrangement, and they proceed somewhat in the manner usual in bankruptcy by appointing a trustee; and there is power, in case of any legal or other difficulties, to call on the court to adjudicate the debtor a bankrupt in the usual way; and in all cases the proceedings are under the surveillance of the bankruptcy court.

The criminal offenses committed by a bankrupt are such as not surrendering himself to the jurisdiction of the court at the time appointed; not making a full discovery of all his property and his dealings with it; concealing or embezzling part of his property above £10; not informing his trustee of any false debt proved under his bankruptcy; falsifying his books; fraudulently accounting for his property by fictitious losses; pawning or *mala fide* disposing of property within three months before the bankruptcy.

In Ireland bankruptcy is substantially the same process in all its features as in England.

Scotch bankruptcy, or sequestration, is substantially the same process as that which prevails in England and Ireland; but there are some differences of no small importance, besides the different names given to the steps of the process. Certain acts and conduct of the bankrupt are held to be symptoms of notour bankruptcy, corresponding to what are called in England acts of bankruptcy. The first step is a petition for sequestration, which may be presented by creditors whose debt must be of the same amount as in England. There is no separate court of bankruptcy, but the sheriff of the county, or the court of session, has jurisdiction to award sequestration, and the court then appoints a judicial factor, if necessary, until the creditors elect a trustee, in whom the property vests. The creditors also appoint commissioners to advise with the trustee as to the

management of the estate. The duties of the trustee and commissioners are nearly identical with those of the trustee in England. The creditors prove their debts in a similar way. There are also powers of winding up the estate under a deed of arrangement. The whole procedure in the sequestration has been very much imitated in the latest statutes passed in England. The commissioners of the creditors fix the trustee's remuneration. The trustee examines the grounds of claim of creditors, there being an appeal to the lord ordinary or sheriff, and he examines the bankrupt on oath, if necessary. On a report from the trustee as to the conduct of the bankrupt, which is not demandable by the bankrupt till five months after the sequestration, the bankrupt petitions for his discharge, and if the creditors all concur, he is entitled to his discharge at once; at later dates, if he has the concurrence of a certain number of his creditors, he is also entitled to a discharge; but if the creditors oppose, the court has a discretionary power to grant or suspend the discharge with or without conditions. In Scotland there is no distinction, as there was once for many purposes in England, between traders and non-traders. Another peculiarity of a Scotch sequestration is, that the process is applicable not only in the case of debtors who are alive, but in cases of persons who have died in insolvent circumstances; whereas in England the only remedy is an administration suit in the court of chancery. In Scotland there is a process called *cessio bonorum*, which resembles the process called insolvency in England, the principle of which is, that the debtor is only relieved from imprisonment, but not from the debt; and where the debtor has trifling assets, it is in the power of the creditors to resolve that their debtor shall not have a discharge under the sequestration, but only a decree in a *cessio bonorum* (q.v.).

With regard to the effect of a discharge under a bankruptcy in either of the three kingdoms, the rule is, that whether the bankruptcy is awarded in England, Ireland, or Scotland, all the property of the bankrupt vests in the assignee or trustee, wherever it is situated; and when the bankrupt is discharged, the discharge is thereafter complete and given effect to in all parts of the United Kingdom. Of late years, owing to the belief that it was much easier to be made a bankrupt, and obtain a discharge from debt, in Scotland than in England, various English debtors resorted to Scotland for forty days, in order that they might be made bankrupt, no doubt thinking that creditors would be less likely to oppose their discharge at that distance; and after their discharge, they returned to England and pleaded this Scotch bankruptcy. But a recent statute has given power to the Scotch courts to refuse the remedy of sequestration to debtors whose debts were chiefly contracted in England, and to remit them to their own country.

INSOLVENCY (*ante*). The distinction between insolvency and bankruptcy, so long observed in England, is unknown in the United States, where the two words are used interchangeably in legal proceedings as well as in ordinary speech. The constitution empowers congress to "establish uniform laws on the subject of bankruptcies throughout the United States." The laws of congress made in accordance with this provision have been called bankrupt laws, while those made by the states for the same purpose have generally been called insolvent laws; but this implies no essential difference in the meaning of the words. Whenever congress passes a bankrupt law, the insolvency laws of the states are thereby superseded. The first U. S. bankrupt law was enacted April 4, 1800, and repealed Dec. 19, 1803; the second, passed Aug. 19, 1841, was repealed in 1843; the third, enacted Mar. 2, 1867, was repealed May 11, 1878. These laws were alike in purpose and spirit, though differing in details. Their object was to discharge insolvent debtors upon the surrender in good faith of all their property, and to divide the same equitably among their creditors. They also provided a method whereby creditors, under certain conditions, could force a debtor into insolvency. The last law was repealed, not so much from any opposition to its main principle, as on account of the alleged needless expensiveness of some of its processes. As debtors and creditors are often citizens of different states, the operation of the state insolvent laws is often attended with much embarrassing and expensive litigation, which can be avoided only by confiding the whole matter to tribunals whose jurisdiction is not restricted by state lines. There are two different processes by which insolvent debtors in many if not all the states of the union frequently obtain their discharge, and these are sometimes preferred to a resort to proceedings in bankruptcy. One of these processes is what is known as a voluntary "composition" by the debtor with his creditors, whereby the latter agree to surrender a portion of their claims on condition that the remainder shall be paid. In such cases the parties usually enter into covenant, founded upon a sufficient consideration to make it valid, such covenant being in the form of a "composition deed" in which all the conditions of the bargain are set forth in legal form and under seal. This deed is made void by any subsequent fraud of the debtor in disposing of his property. The other method of relief is by assignment on the part of the debtor of all his property, to be equitably divided among his creditors. The assignee of the property assumes in law the responsibilities of a trustee, and is held to a faithful performance of his duty as the administrator of a trust fund. The mode of making such assignments is sometimes specifically regulated by statute. The fraudulent preference of any creditor by a debtor in contemplation of insolvency will, in general, be a sufficient ground for withholding a discharge. In many states the payment of a prior debt

within a year of the insolvency proceedings, by a debtor having reason at the time to suppose himself insolvent, will prevent his discharge. Insolvency is either voluntary or involuntary. In the case of the former the debtor himself petitions to be allowed to take the benefit of the insolvency laws and to have a distribution of his property made among his creditors for the payment of his debts; and his petition sets forth the amount of his debts and his inability to pay them. In the case of involuntary insolvency, the creditor's petition that the assets of the debtor may be distributed under the insolvency laws among his creditors, on the ground of fraudulent concealment or conveyance of the debtor's property, or of his failure to dissolve within a certain time an attachment placed upon it. Upon proof of the facts alleged in the petition, a warrant against the debtor's property isssues from the proper authority, judge of probate, master in chancery, or commissioner of insolvency, as the case may be. The officer of the court, or magistrate, thereupon takes possession of the debtor's effects. A meeting of the creditors is then called, and an assignee is chosen to whom the debtor's property is conveyed. He has absolute power over the property, subject to the order of the court, collects debts, makes payments, transfers real estate, calls meetings of the creditors, etc. In most states, after all the property of the debtor has been applied in payment of his debts, he is entitled to a discharge upon consent of a certain percentage of his creditors, according to number or to the amount of their claims.

INSOMNIA. See SLEEP, *ante*.

INSPECTOR—INSPECTOR-GENERAL, terms in military affairs, having a somewhat vague signification. There are inspectors-general of cavalry, infantry, artillery, engineers, militia, and volunteers, whose duties are really those which their names infer—viz., the periodical inspection of the several corps of their respective arms, and the pointing out of deficiencies, the corps being under the command, however, of its own officers, and not of the inspector-general. The inspectors-general of musketry and gunnery instruction are charged with the direct superintendence and ordering of such instruction throughout the army. In the medical department, the inspectors-general of hospitals constitute the highest grade of surgeons, under the director-general of the whole department.

Inspectors are employed in many capacities. Inspectors of volunteers are staff officers charged with the administration and organizing of the detached corps of volunteers in their several districts. The post of inspector-general of auxiliary forces has lately been abolished, and his duties transferred to the department of the adjutant-general, in order to bring the militia and volunteers more immediately under the supervision of the commander-in-chief.

INSPECT'ORSHIP DEED is a deed executed between an insolvent person and his creditors, whereby they accept a part payment, and allow the insolvent debtor to carry on the business under their supervision, with a view to further payments.

INSPECTORS OF SCHOOLS. See NATIONAL EDUCATION.

INSPIRA'TION (literally, *breathing into*) is applied in theology to denote the action of the divine mind upon the human mind, whereby the latter is both supernaturally informed and qualified to communicate the information received. The term *revelation* is used more distinctively to express the first part of this action, and *inspiration* to express the second part. But, in truth, all inspiration, as the word itself bears, implies revelation. There is a necessity for supernatural qualification in the utterance of truth, only where the truth is such as has not been reached by the ordinary exercise of the human faculties, but in some degree at least supernaturally communicated. The prophet or apostle is inspired only as the utterer of knowledge beyond the ordinary reach of human intelligence.

The *inspiration of the Scriptures* signifies a supernatural qualification or special divine authority in the books of Scripture as depositories of truth. When the theologian asserts any book of the Bible to be inspired, he means that it possesses an authority different from any other book, that it contains truth not merely as any ordinary book may do, but by a special divine impress. It is different from ordinary books, as conveying in a more immediate and direct, and therefore authoritative, manner divine truth. All orthodox theologians may be said to agree in ascribing this special divine character to Holy Scripture; but further there is no agreement. The mode of inspiration, the degree and extent of it, are all subjects of dispute. On one side, there are the advocates of *plenary* inspiration, as it is called; then there are those who advocate various subordinate or partial degrees of inspiration. The advocates of plenary inspiration contend that the whole letter of Scripture is inspired, that its words were immediately dictated by the Holy Spirit, and are literary the words of God, and not of man. The several writers of Scripture were nothing more than the penmen of the Divine Spirit, under whose control they vibrated as the strings of a harp in the hands of an artist. They were as a piece of mechanism touched by God himself. Those who maintain this theory, speak, indeed, of the individuality and diverse characteristics of the writers of the Scriptures, but only as one would speak of the different tones which the same artist would produce from one and the same musical instrument. The differences are not so much in the moral or intellectual individuality of the writers

themselves, as in the diverse aims and uses with which the Holy Spirit employs them; for, according to this theory, the Divine is *all* in Scripture, and the human intelligence its mere vehicle or passive instrument. The words of Scripture are no less the words of God than if he were heard to utter them from heaven. It follows from the same theory that inspiration is essentially intermitting. It is not a higher quality of any soul, but a divine afflatus, seizing the soul at certain moments, and abandoning it at others. While the canonical epistles of St. Paul and St. Peter are to be held inspired, the words of these apostles at other times may not have possessed any special authority. The authority of the Scripture which they have delivered, however, is absolute. The inspired or theopneustic document is throughout faultless, as the sole work of the Divine Spirit, faultless equally in its form and in its essence, in its spirit and its letter. It admits of no gradation; all is equally divine, and therefore equally accurate, whether it relate to some ordinary fact, or to some great truth of the supernatural life, whether it treat of a dogma or of the details of a narrative. As one of its recent supporters writes: "Every verse of the Bible, every word of it, every syllable of it, every letter of it, is the direct utterance of the Most High." It follows no less that what God has thus miraculously written, he must have miraculously preserved. A providential canon is the plain sequence of a plenarily inspired Bible.

In opposition to this theory are various others, all of which impose certain limits upon the perfection of Scripture. Some confine inspiration to all that is directly religious in the Bible, to all that is directly of the character of revelation, leaving out of the question all that belongs to the sphere of science or ordinary history. Others exempt the form or letter of Scripture, and attribute inspiration only to its spirit, ideas, or doctrines. Others go still further, and comprise in the fallible form the mode of argument and expository details. Each of these theories supposes inspiration to be connected primarily with the authors rather than with the books of Scripture, sometimes with the extraordinary gifts accompanying the first preachers of the Word of God, sometimes with the peculiar privileges of prophets or apostles, and sometimes with their special position as immediate witnesses of the facts of revelation and their singular religious aptitude. Whatever differences may characterize the advocates of these respective views, it is plain that they, one and all, have abandoned the ground of the absolute infallibility of the letter of Scripture.

In a matter of controversy like the present, it is not our function to determine in favor of any particular view, but simply to indicate what the more important opinions are, and the grounds on which they are held. Those who claim for the letter of the Bible a freedom from all error or imperfection, do so on the *à priori* ground of necessity; such infallibility is held to be implied in the very idea of a revelation of the divine will; while those passages which seem inconsistent with the facts of science or of history, or with other parts of the Bible itself, admit, it is maintained, of satisfactory explanation. For such reconciliations of apparent discrepancies our readers are referred to the current commentaries and harmonies. Those theologians, again, who deny the necessity of infallibility, and hold that the inconsistencies referred to never have and never can be satisfactorily explained away (and their number has been for some time on the increase), argue in the following way: it is plain, first of all, and especially, that the question is not one to be settled according to any preconception, but according to the evidence of the facts given us in Scripture. The only right idea of inspiration is, as one has said, "that which we form from our knowledge of the Bible itself. It is a question to be solved not by speculating what the Bible ought to be, but by examining what it actually is." All *à priori* arguments are evidently at once inapplicable and dangerous on such a subject. The partisans of plenary inspiration maintain that it is necessary to the preservation of faith to hold, that God has not only revealed the truth to man, but that he has deposited that truth in an infallible record. Not only so; but the infallibility of the canon is no less indispensable; for all would be lost if any doubt was allowed to rest upon any portion of the Word of God. But if an infallible text and an infallible canon be necessary, why not also an infallible interpretation? Without the latter, the two former may be of no use. All may be lost by a false or defective commentary of the sacred text. It is plain that the idea of verbal inspiration cannot stop short of the conclusion of an infallible interpretation; and even such a conclusion, which upsets Protestantism, by denying the right of free inquiry, would not save it; for an infallible commentary would not necessarily insure infallible instruction—all might still be lost by the weakness, ignorance, or defect of the recipient mind. No infallibility of text, of canon, or even of interpretation, could insure the infallible reception of the truth, thus trebly guarded. If we would not be caught, then, in this absurd chain of assumption, we must break its first link, and ask, not what the Bible must be or should be, but what it is. This view is strongly argued in a recent treatise on inspiration by M. de Pressensé, one of the most distinguished of the French Protestant divines belonging to the evangelical school of theology. According to this writer, who may be taken as the representative of a large class of theological thinkers, the Bible is a mass of documents of varying age and varying authenticity; its text has undergone the usual changes attending the transmission of historical documents; it is marked by the usual inequalities and varieties of style that we meet with in any other

collection of ancient literature; it presents in many cases peculiar difficulties, differences and even contradictions of detail, scientific and historical errors. All who have studied the gospels minutely, and especially the quotations in the gospels and the epistles of St. Paul from the Old Testament, know that there are various inaccuracies and misapplications of facts throughout them. The same microscope of criticism that reveals to us the depths of the inner meaning of the divine message in all its manifold fullness, reveals to us also the imperfections, and even the contradictions, of the human messenger. The following are only a few of the instances in which such "imperfections and contradictions" show themselves.

1. The recital of the temptation in St. Matthew and St. Luke. In the former (Matt. iv. 6–8), the vision from the pinnacle of the temple is placed first; in the latter (Luke iv. 1–10), that from a lofty mountain takes precedence.

2. In Matt. x. 10, Jesus commands his apostles to take for their missionary journey neither "scrip, neither two coats, neither shoes, *nor yet staves.*" In Mark vi. 8, he commands them to "take nothing for their journey, save a staff only."

3. In the narrative of the passion, as in that of the resurrection, there are numerous contradictions of detail resting on a fundamental and striking unity. According to Mark xiv. 72, the cock is represented as crowing on each of the first and second occasions on which Peter denies his Lord. In the accounts given by the other evangelists, the cock only crows upon the third denial (Matt. xxvi. 74; Luke xxii. 60). The statement of the death of Judas differs materially in Matthew and in the Acts of the Apostles. According to the former, Judas casts down the pieces of silver, and departs and hangs himself; and the chief priests *afterwards* purchase with the price of his guilt the potter's field for the burial of strangers, hence called the field of blood. According to the Acts of the Apostles i. 18, Judas himself is represented as having purchased the field "with the reward of iniquity;" then as having in some way (not explicitly stated in the narrative) met there a bloody death, from which circumstance the field took its name. In the narratives of the resurrection, it is well known there are numerous variations; and numerous palpable errors of memory as to historical facts occur, such as may be seen by comparing Mark ii. 26 with 1 Sam. xxi. 2–6, and 1 Cor. x. 8 with Numb. xxv. 9.

4. As to the citations of the Old Testament in the New, they are almost entirely taken from the Septuagint, and evidently in many cases quoted from memory, with little regard to their exact sense in the original. Thus, St. Matthew (ii. 6), in applying to the Messiah the prophecy of Micah (v. 2), says of Bethlehem precisely the reverse of the Septuagint. "Thou art too little to be reckoned among the thousands of Juda," he translates: "Thou art not the least among the princes of Juda." In many cases, the New Testament writers, while repeating the inaccuracies of the Septuagint translation, turn them to admirable account; this is especially remarkable in the gospel of St. Matthew and the epistles of St. Paul. Thus (iii. 3) St. Matthew translates with the Septuagint: "The voice of one crying in the wilderness;" while the Hebrew is: "A voice cries, make plain in the wilderness the ways of the Lord" (Isaiah xl. 3). Compare also Matt. xii. 21 and Isaiah xlii. 4, also Matt. xv. 8 and Isaiah xxix. 13.

None of these errors, it is maintained, are of any material consequence so far as the substantial veracity of Scripture is concerned. The very fact that a microscopic criticism can detect no more serious inconsistencies in the scriptural writers, is rightly held to be one of the most striking testimonies that could be given to their truthfulness. Such slight inaccuracies are the mere freedoms which writers, thoroughly honest, and animated with a high interest which overlooks trifles, permit themselves. But however unimportant in themselves, they are considered by many theologians to be altogether inconsistent with a theory of verbal inspiration. However minute, they are recognized as real *discrepancies*—human imperfections in the sacred record—and as consequently proving that the mere text or letter of Scripture is not infallible, that it cannot be regarded as a "direct utterance of the Most High."

Inspiration, therefore, according to these theologians, does not imply the infallibility of the scriptural text; it is something consistent with scientific, historical, exegetical, and even argumentative errors (witness, to quote no other example, St. Paul's allegorical argument about the sons of Abraham, Gal. iv. 22, 25). There is nothing valid, no divine authoritative element, it may be said, that can survive such deductions. If there are such errors in Scripture, why may it not all be imperfect or erroneous? The sufficient answer is, that it is not so—that, judged by the very same critical tests which detect such errors, the Bible remains an entirely *unique* book. Every Christian mind recognizes in it a higher divine knowledge and authority than in aught else. The divine spirit in Scripture makes itself felt, shines forth in every page of it; and this is inspiration in the highest sense, the mind of God meeting our minds in Scripture, enlightening, guiding, elevating, purifying them. There is nothing more in reality to be got from any theory than this. An inspired letter, or *word*, or message is nothing to any one *in itself;* the meaning is everything. We must understand the word or message. There is no degree of objective authority that can supersede this subjective process of apprehension on our part. There cannot, therefore, be immunity from error, let the symbol or the text be as perfect as possible. It is only to us what *we* see it to mean; and this meaning, in the case of Scripture, shines with a divine power and luster

such as invest no other book. It bears its own divine witness. In such an idea of inspiration, criticism finds nothing inconsistent, nothing impossible, and no higher idea can be well formed of it.

INSPIRED, THE, or COMMUNITY OF TRUE INSPIRATION, a small body of Christians who profess to derive their origin from pietists of Germany and from French Protestants of the Cevennes—a remnant of the Albigenses—named Camisards from the peculiar dress they wore. They receive the teachings of the German mystics, Böhme and Schwenkfeld, and cherish evangelical opinions, but do not use the sacraments. They claim at times to be divinely inspired, retaining their mental activity, but becoming insensible to outward things. They hold their property to some extent in common. In 1844 they established a community at Ebenezer, Erie co., N. Y., which continued 10 years. They then removed to Iowa, and have now settlements in that state and in Canada.

INSTALLA'TION, in church law, means the ceremonial act or process by which a person presented and legally confirmed in a benefice is formally put into possession of his office, and by which he is fully empowered not alone to exercise its functions, but to enjoy its honors and emoluments. The ceremonial form, as well as the name, differs according to the office which is conferred, as "enthronization" for a bishop, "induction" for a rector, etc. "Installation" properly regards the office of a canon or prebendary. The word is also used generally for a formal introduction to any office.

INSTERBURG, a t. of Prussia, in the province of east Prussia, is pleasantly situated on the left bank of the Angerap, 15 m. w.n.w. of Gumbinnen. It contains a castle, and several educational institutions. Cloth-weaving, tanning, brewing, and distilling, with a trade in corn and linseed, are carried on. Pop. '75, 16,380. Insterburg had its origin in a castle of the Teutonic order of knights, built here at an early period. At the close of the 16th c. it had attained the rank of a town, which increased considerably after the 17th c. about which time a number of Scottish families settled at Insterburg on account of its trade.

INSTINCT. It has been common to describe the actions of the lower animals as guided by principles different from what obtains in the human constitution. The power of self-preservation is considered as reason in man, and as instinct in the brutes; but this contrast does not contain a real opposition. There is much that is common in the impulses of men and animals. When an animal, having found a morsel agreeable to its taste, masticates and swallows it, and takes up another of the same, the mental operation is not essentially different from what a human being would go through in the like circumstances. In both instances we have an example of the exercise of will, or volition, which operates to promote the pleasures and ward off the pains of the sentient being.

The most important meaning connected with the term instinct is what contrasts with experience, education and acquired knowledge. The original or innate tendencies and powers of the mind are to be distinguished from the powers that grow up in the course of the animal's experience of the world, and its companionship with other living creatures. There has been a disposition to underrate the acquired aptitudes of the inferior animals, and to refer their capability of self-preservation purely to their natural or primitive endowments. But in point of fact men and animals alike possess both instincts and acquisitions; for although in man the preponderance is greatly in favor of the acquired, he, too, must start from something primordial, the basis of the other.

In the first place, there are certain actions of importance to the safety and well being of the individual that are termed reflex, or automatic. They seem to be almost out of the sphere of mind proper, as they are performed even unconsciously. Among these are the propulsion of the food along the alimentary canal, sneezing, respiration, etc. In all these we have important activities, which are inherent in the constitution, and are performed as effectually at the beginning of life as at the full maturity of the being.

In the second place, there is a certain original provision for rhythmical and combined movements among the active organs, more especially those concerned in locomotion. Thus, there is a natural tendency to alternate the limbs, although the human infant cannot turn this to account at once for the ends of walking, as some of the quadrupeds can. From this alternation the two eyes and the two sides of the face are specially exempted, and brought under another arrangement equally primitive—namely, concurrence. But all these cases alike illustrate the presence of an original mechanism of the frame, by which the movements are grouped up to a certain point.

In the third place, it may be safely maintained that there is an inborn tendency in all animals to *act somehow*, or to put forth the energies that they possess, without waiting for the stimulus of their sensations. This spontaneous activity is shown more or less in every creature after rest and nutrition (see SPONTANEITY). Destitute of any special direction at the outset, it yet prompts to a great many experiments or trials upon things, in the course of which the animal discriminates the suitable from the unsuitable by means of its sensations, and thereby learns to follow up the one and eschew the other.

Fourthly, in connection with our emotions there are certain primitive links of mental state with bodily manifestation, which constitute a natural language of the feel-

ings understood by the whole human race. The meaning of the smile, the frown, the sob, the contortion of pain, is uniform, and therefore instinctive. See EMOTION.

Fifthly, the power of will or volition, although it can be shown to be a *growth*, must have some primitive and instinctive elements in the constitution to start from. See WILL.

Sixthly, there must be certain primordial powers of the human intellect. What these are has been much disputed. Every one must concede the existence of some intellectual forces or faculties, as, for example, discrimination, the basis of all knowledge; retentiveness, the faculty of acquiring everything that is acquired; and agreement, or similarity (see INTELLECT); but it is contended by one school that we possess not merely powers of receiving knowledge by our contact with the world, and our consciousness of our minds, but *actual notions or ideas* that cannot be traced to our experience of the material or mental phenomena that we encounter. This is the doctrine of innate ideas, intuitive conceptions, *à priori* cognitions and judgments, first truths, etc. See COMMON SENSE.

Animals possess, as a rule, the instincts of human beings, with some that are special to themselves. They have the reflex actions above enumerated; they have, even in a more decisive form, the primitive combined movements for locomotion and other purposes; they have the spontaneous activities that come under control in their voluntary acts; they have emotional manifestations that are emittent, although their organs of expression are fewer; they have certain rudimentary powers, which are developed by experience into the activity of the will.

There are certain intellectual judgments that in man are mainly, if not wholly, the result of experience, but in animals are instinctive. The chief of these is the appreciation of distance and direction, which is shown in the ability to take an aim, as in birds pecking their food soon after they are born. The higher quadrupeds learn to feed themselves in a space of time too short for acquisition. It would seem also that animals have instinctive notions of things, as in the case of the aquatic animals knowing water at first sight, a fact generally affirmed, and not easy to contradict. In the same way, they may know their food at first sight before tasting it.

It is in connection with sociability that we have the largest compass of undoubted instincts. Animals seem to know their own species by intuitive perception. Predatory animals certainly recognize their prey by instinctive perception; the young kitten is aroused by the sight of a mouse; the dog pursues a cat with a decision and vehemence that could not be given by eduction. So animals that are preyed upon intuitively dread their captors.

While pleasure and pain must be regarded as fundamental attributes of the mind, inseparable from its working, the more special modes of feeling called emotions, as love, anger, fear, are states superinduced upon the primary modes of feeling, and as they appear from the earliest moments of life, they are properly termed instincts, being common to man and to animals.

Among the most notable instincts are the constructions of forethought—as the nests of birds, the cells of bees and wasps, the ant-hillocks, the beaver's dwellings, the spider's web; also the precautionary movements of animals, as in the migrations of birds and fishes, according to season. The striking and extraordinary anecdotes given of the sagacity of some animals, as the dog, the horse, the cat, the elephant, do not, properly speaking, exemplify instinct; they involve experience, memory, and reason, which animals are capable of in a greater or less degree, and with great individual differences, even in the same species. Respecting these various instinctive aptitudes, the account given until lately was that each distinct animal species was originally created so; and that the powers belonging to each were handed down without change from parents to offspring. A new rendering of the phenomena has been given in the doctrine of *evolution*. According to this doctrine, as applied to mind, instincts are experiences and acquisitions that have become hereditary.

"Though reflex and instinctive sequences are not determined by the experience of the *individual* organism manifesting them, yet the experiences of the *race* of organisms forming its ancestry may have determined them. Hereditary transmission applies to mental peculiarities as well as to physical peculiarities. While the modified bodily structure produced by new habits of life is bequeathed to future generations, the modified nervous structure produced by such new habits of life are also bequeathed; and if the new habits become permanent, the tendencies become permanent. Let us glance at the facts: Among the families of a civilized society, the changes of occupation and habit from generation to generation, and the intermarriage of families having different occupations and habits, greatly confuse the evidence of mental heredity. But it needs only to contrast national characters to see that mental peculiarities caused by habit become hereditary. We know that there are warlike, peaceful, nomadic, maritime, hunting, commercial races—races that are independent or slavish, active or slothful; we know that many of these, if not all, have a common origin; and hence it is inferable that these varieties of disposition, which have evident relations to modes of life, have been gradually produced in the course of generations. In domesticated animals, parallel facts are familiar. Not only the forms and constitutions, but the dispositions and instincts of horses, oxen, sheep, pigs, fowls, have become different from those of their wild kindred. The various breeds of dogs exhibit numerous varieties of mental character and faculty per-

manently established by mode of life; and their several tendencies are spontaneously manifested. A young pointer will point out a covey the first time he is taken afield" (Spencer's *Psychology*, vol. i., p. 422).

The strongest evidence, however, for the evolution theory is the remarkable similarity between instincts and acquisitions. Our instincts are just the powers that we need for our support and preservation, and that we should acquire by trying what actions are best suited for this purpose. An animal coming into the world unable to adjust the movements of its limbs, head, and mouth, to pick up the food that lies before it, would have to learn these movements as quickly as possible. Once acquired, they persist, and if very strongly embodied in the nervous system, they may be transmitted in a more or less perfect form to the next generation. Even granting that the transmission is not full and complete, a sufficient trace may be left to render the acquisition comparatively short. There are a great many instincts that need a certain amount of practice to make them operative; the first attempts at locomotion in most animals are feeble and awkward.

INSTITUTE, a term used in Scotch entail law to denote the person who is first mentioned or described as entitled to take the entailed estate. All those who come after him are called substitutes. When the institute dies before the entailer, the next person mentioned takes as institute. There are certain rules of construction which favor the institute, but these are entirely technical.

INSTITUTE, The, English law, is the mode of citation or reference to chief-justice Coke's great work, in four volumes, on English law. Another name for the first part of it is *Coke upon Littleton*, owing to its being a commentary by Coke upon a work of Littleton. The second book is a comment on acts of parliament, the third is a treatise on the pleas of the crown, and the fourth on the different kinds of courts.

INSTITUTE OF FRANCE. On the revival of letters, associations for mutual intercourse and co-operation, called academies (q.v.), were formed in Italy and France, one of which, composed of poets of no great note, was converted by Richelieu into a national institution, under the name of *Académie Française*, and met for the first time July 10, 1637. The chief object of this institution was the cultivation of the French language; but this was indifferently accomplished, owing to the intermeddling of the court, which arrogated to itself the right of directing the public taste. Many of the judgments of this academy were strangely erroneous—e. g., its rejection of the *Cid* of Corneille, and its refusal to admit Molière, Boileau, and La Bruyère as members. The academy was intrusted with the preparation of a dictionary of the French language; but the merits of this work have been much disputed, and the plan of it generally condemned.—The taste for devices, inscriptions and medals, which prevailed in the 17th c., suggested to Louis XIV. the foundation of the *Académie des Inscriptions* in 1663, for the immediate object of examining his collection of medals and other antiquities; but the abbé Bignon, superintendent of the royal library, secured its perpetuation, with an extension of its field of labor, as the *Académie Royale des Inscriptions et Belles-lettres*, under which designation it met for the first time July 16, 1701.—The third academy in order, and at present the most distinguished scientific association in the world, the *Académie Royale des Sciences*, was founded by Colbert in 1666, remodeled by Bignon in 1699, and further enlarged in 1785.—The painter, Le Brun, founded in 1648 an *Académie de Peinture*, for which he obtained a charter in 1655; and in 1664, Colbert remodeled and established it as the *Académie Royale de Peinture et Sculpture*.—An *Académie Royale d'Architecture* was also founded.

All these academies were suppressed by an edict of the convention, Aug. 8, 1793; but on Oct. 25, 1795, the directory established a great national association for the promotion of the arts and sciences, called the *Institut National*. It was at first divided into three classes: viz., sciences physiques et mathématiques; sciences morales et politiques; sciences de littérature et beaux-arts; but on the suppression of the second class by the first consul in 1803, the remaining classes were rearranged as follows: sciences physiques et mathématiques; langue et littérature Française; histoire et littérature ancienne; beaux-arts; and this arrangement continued during the empire. On March 21, 1816, a royal ordinance commanded that the four classes should be replaced by four academies, but the general title, "Institute of France," was retained, being modified by the epithet "royal," "imperial," or "national," in harmony with the political changes in France. Since 1870 it is, of course, the *Institut National*. The four academies are: 1. *L'Académie Française;* 2. *L'Académie des Inscriptions et Belles-lettres;* 3. *L'Académie des Sciences;* 4. *L'Académie des Beaux-Arts;* and an ordinance, bearing date, Oct. 26, 1832, re-established the old second class as a fifth academy, *L'Académie des Sciences Morales et Politiques*, and this organization still subsists.

Each academy has its own independent government, and the free disposition of the funds alloted to it, an agency and secretaries; the library and the valuable collections of the institute are common to the five; the common fund is managed by a committee of ten members (two from each academy), under the presidency of the minister of public instruction. Members are elected by ballot, the election requiring to be confirmed by government, and members of one academy may be elected as members of any or all of the other four. Each member has an annual salary of 1500 francs, and the secretaries

have 6,000. Each member also receives a napoleon for each meeting of the academy at which he is present, but is liable to a fine if absent for a whole year, or to expulsion for a prolonged absence without sufficient cause shown. Each academy meets once a week for two hours; each has also one public annual sitting; and on Aug. 15 there is a general public meeting of the whole five. All the academies, with the exception of the first, have a certain number of *académiciens libres*, *associés étrangers*, and *correspondants;* the "académiciens libres" have only the right of attending the meetings of the academy; the "associés étrangers" are foreign members. The following table gives the full complement of members and correspondents for each academy, in 1883.

	Members.	Académiciens Libres.	Associés Étrangers.	Correspondants.
1. Académie Française	40	....	...	...
2. " des Inscriptions et Belles-lettres	40	10	8	50
3. " des Sciences	66	10	8	100
4. " des Beaux-Arts	40	10	10	50
5. " des Sciences Morales et Politiques	40	6	6	39
	226	36	22	239

Among the *associés étrangers* in 1874 there were in the 2d academy, prof. Max Müller; in the 3d, profs. Owen, Airy, and Wheatstone; and in the 5th, the right hon. W. E. Gladstone, and the right hon. earl Stanhope. Of correspondents, Mr. Thomas Wright belonged to the 2d, as did also sir H. Rawlinson, Mr. Layard, and Dr. John Muir of Edinburgh. Late correspondents with the various academies were prof. Faraday, sir D. Brewster, sir J. W. Herschel, lord Brougham, Mr. M'Culloch, Mr. Grote, and Drs. Whewell and Whately. The *Académie Française* occupies itself with debates on grammar, rhetoric, poetry, and French literature in general, and its great work is the preparation and continual improvement of a dictionary of the French language. It has the disposal of two prizes of 10,000 francs each, one of 2000 francs, and every alternate year a sum of 1500 francs to be bestowed on meritorious authors in poor circumstances. The *Académie des Inscriptions et Belles-lettres* has for its subject history in its most comprehensive sense, including chronology, geography, numismatology, and the study of monuments of every kind, and of the languages of all nations at all times. It has in its gift a prize of 2000 francs, and another for numismatology. The *Académie des Sciences* has for its subject statistics, pure and mixed mathematics, medical science, etc.; and has the gift of eleven prizes, several of which are of 10,000 francs; all are annual, with the exception of one, which is decennial. The *Académie des Beaux-Arts* occupies itself with painting, sculpture, architecture, engraving and music; and with the preparation of a dictionary of the fine arts, and alternately with the first academy, distributes the sum of 1500 francs among poor meritorious authors. The *Académie des Sciences Morales et Politiques* discusses mental philosophy, law and jurisprudence, political economy and statistics, general and philosophical history, and politics, administration, and finance; and has the gift of two prizes—one decennial, the other quinquennial. There is also a Bordin prize in the gift of each academy; and two general prizes—one annual, the other triennial—in the gift of the institute.

Each year a sum is voted by the French government for the general fund of the institute, and from this fund are paid the allowances of members, salaries of the secretaries and other officials, and several prizes; also experiments, printing, etc.

INSTITUTES is the name given to the elementary treatise on the Roman or civil law. See Law, Roman, Civil.

INSTITUTION, in church law, means the final and authoritative appointment to a church benefice—more especially a bishopric—by the person with whom such right of appointment ultimately rests. Thus, in the Roman Catholic church—even after the "election" of a bishop by the chapter, or his "nomination" by the crown, when that right belongs to the crown—it is only the pope who confers "institution." In English usage, institution is a conveyance of the cure of souls by the bishop, who, or whose deputy, reads the words of the institution, while the clerk kneels. The institution vests the benefice in the clerk, for the purpose of spiritual duty, who thereupon becomes entitled to the profits thereof. But the title is not complete till induction (q.v.).

INSTRUMENT, in point of law, is scarcely a technical term, though it is frequently used in England as descriptive of a will or testamentary writing—and often any document not under seal. In Scotland, on the other hand, it is usually descriptive only of a notarial instrument.

INSTRUMENTATION is the arranging of music for a combined number of instruments. The nature and character of the musical ideas must alone determine whether the instrumentation shall be simple or artistic, and perhaps complex; the latter being the case when some of the instruments take a more prominent part than others. For both purposes, a thorough knowledge of every instrument in the orchestra is absolutely necessary, as without this, instrumentation becomes only a deafening mass of sounds. The stringed

instruments, from their nature, in most cases, form the principal parts of a score, around which the other instruments move, without depriving them of their importance. The wind instruments represent, more or less, as it were, a subordinate chorus, which may again be divided into two kinds, viz., the wood instruments and the brass, which, with the stringed instruments, give three essentially different choral effects, that may be mixed up together in endless variety. A knowledge of the art of instrumentation is only to be acquired by great experience; at the same time much may be learned by consulting the following works: *Die Instrumentirung für das Orchestra*, by Sundelin; the German text-books on instrumentation by Marx and Lobe; Berlioz, *Traité d'Instrumentation;* Gassner, *Partiturkenntniss.*

INSTRUMENTS, Musical, may be divided into three classes—stringed, wind, and percussion. Stringed instruments are of three kinds: those whose sounds are produced by friction, as the violin, viola, violoncello, etc.; by twitching with the finger or otherwise, as the harp, guitar, mandoline, etc.; by striking, as the pianoforte and dulcimer. Wind instruments are of two kinds, viz., the reed species—as the hautboy, clarionet, etc.—and the flute species, as the flute, flageolet, etc. The trumpet, horn, trombone, and all similar wind instruments, are generally classed among the reed instruments; but whether the sound is produced by the lips of the blower acting as a reed, or by the compressed stream of air, as in flute instruments, is not yet determined. Percussion instruments are those which on being struck produce only one fixed sound, as the drum, triangle, cymbals, tambourine, etc. Whatever material may be used to form a musical instrument, there are only two means of producing musical sounds, and these are by the vibrations of a fixed elastic body, such as the string of the violin or pianoforte, the reed of the hautboy, bassoon, etc.; or by the vibrations of a confined column of air put into motion by a stream of compressed air, as in the flute, flageolet, and all the ordinary flute species of organ-pipes.

INSUCKEN MULTURES, in Scotch law, mean the payments made to the miller by persons who are bound to grind their corn at a particular mill, under a servitude called thirlage (q.v.). Outsucken multures mean the payment for the mere grinding, which strangers pay; and the insucken multures include that *plus* a small premium, which goes to the proprietor of the mill.

INSURANCE, a contract of indemnity, whereby one party, in consideration of a specified payment, called a "premium," undertakes to guarantee another against risk of loss. The first principles of insurance would appear to have been acted on at a very early period, since, without attaching undue importance to the opinions of writers who contend, on the authority of Livy, that they were known during the second Punic war, or that the emperor Claudius can be considered an insurer, because, in order to encourage the importation of corn, he took all the loss or damage it might sustain upon himself—there are yet extant rules of sundry "guilds," or social corporations of the Anglo-Saxons, whereby, in return for certain fixed contributions, the members guarantee each other against loss from "fire, water, robbery, or other calamity." It was, however, to cover maritime casualties that insurance, viewed in its commercial aspect, seems to have been first undertaken. So early as 1435 the magistrates of Barcelona issued an ordinance relating to this class of business, and we find in the speech of the lord keeper Bacon, on opening queen Elizabeth's first parliament, the allusion, "doth not the wise merchant, in every adventure of danger, give part to have the rest assured." The merit of being the first to apply mathematical calculations to the valuation of human life belongs to the famous John de Witt, pensionary counselor of Holland, whose report to the states-general on the valuation of life annuities has been lately brought to light by Mr. Hendriks. The first insurance company established in Britain appears to have been the "Amicable," founded in 1696; not the office known by that name now, but the one that still exists as the "Hand in Hand." Omitting the gambling and other objectionable projects for which the science of insurance has been held responsible, it would exceed the limits of the present article to give any detailed account of even the more legitimate applications of it which are current at the present day: the traveler can be protected from the pecuniary loss entailed from damage by rail or flood; the gardener from the devastation of the hailstorm; the farmer from the inroads of disease among his cattle; and employer and employed alike reap the benefit of a guarantee on fidelity. 126 established life offices within the United Kingdom appeared in an accredited list published in 1874, and although there were, besides, 66 winding up in chancery, there is an amount of confidence to be placed in the stability and integrity of the greater number existing that cannot be exceeded in any other commercial interest. We propose confining our remaining remarks to the divisions of fire, life, and marine insurance.

1. *Fire Insurance.*—Although the business of fire insurance is not founded upon such exact data as can be made available in the practice of life insurance, yet considerable progress has been made by the offices towards a correct classification of the risks they run, and the rates of premium range by slight gradations from a minimum of 1s. 6d. per cent, which covers an ordinary private dwelling-house, to £3 3s. per cent and upwards, charged for insuring cotton-mills, sugar-refineries, theaters, and like specially hazardous risks. The average rate of premium received for risks in the United Kingdom may be estimated at 4s. per cent. A duty of 3s. per cent per annum used to be

levied by government upon all fire insurances, except farming-stock and public hospitals, and the parliamentary returns made of it afforded valuable statistical information of the total amount insured. The duty paid in the year 1860 amounted to £1,558,608, representing a gross amount insured over the year of £1,039,072,140; and farming-stock, £73,309,898. Since the repeal, in 1869, of the act which levied a duty upon fire insurances, no data remain for estimating the total value of those now effected in this country. The "life assurance company's act, 1870," provided only for the publication of the accounts of such fire offices as do life business also. The local returns made to the board of works, upon which to estimate the contributions of the companies for the maintenance of the fire brigade, afford incidentally an interesting proof of the wealth of the metropolis, and of the magnitude of its business operations. Over the area mentioned, which excludes the important warehouses of the Victoria docks, the returns exhibited by the resident companies of insurances for 1873 showed a total value of property covered of upwards of £488,500,000. Fire insurance policies are of too familiar use to require explanation here, but one point in connection with them may be noticed: unlike a marine policy, they guarantee the insured to the extent of the whole amount specified in them, without regard to the excess of value of the entire property before the fire, unless an exceptional "average clause" is attached to the policy.

2. *Life Assurance*, in its widest sense, is a contract entered into by the assurer to pay a certain benefit contingent upon the duration of one or more lives. The "present value" or single premium corresponding to an assurance of £1, payable at the end of the year of death of an individual, is deduced from the value of an annuity on the same life (see ANNUITY), and is expressed by the formula $v - (1 - v)\,A_x$, where v is the sum which will amount to £1 in one year (therefore equal to $\frac{1}{1+r}$, r being the interest of £1 for a year), and A_x is the value of an annuity of £1 per annum on the life aged x.

The more common form in which a life assurance is carried out is, however, by the payment of an annual premium to the company assuring, and this is determined (using the same symbols as above) by the formula $\frac{1}{1+A_x} - (1 - v)$. The truth of which is thus demonstrated in a popular form by Mr. Gray. The present value of an "immediate" annuity on a life aged x—i.e., of an annuity of which the first payment falls to be made at the commencement of the transaction—being $1+A_x$, it is easily deduced by proportion that £1 will purchase an immediate annuity of $\frac{1}{1+A_x}$, the reciprocal of the first value; and this would be the proper premium for the benefit if the latter were paid to the assured at the beginning of the first and not at the end of the last year of the duration of the policy; but inasmuch as the benefit is not paid until the close of the stipulated period, the difference between its immediate value and its value if due a year hence $(1 - v)$ has to be deducted from each year's premium, and the formula is the result.

The three important elements that have to be taken into account in the calculation of office premiums are—the rate of interest which is to accrue from their investment, the mortality returns with which the future experience of the insured is expected to agree, and the proportion or "loading" to be added to the *net* rates to meet expenses of management, and afford a profit to the insurer. The rate of 3 per cent has, with a very few exceptions, been adopted as a basis for such calculations, as the nearest to what can be expected to be realized on good security for transactions extending over many years. The mortality table most generally in use is that originally published by Mr. Milne, derived from the observations of Dr. Heysham on the rate of mortality in Carlisle during the nine years 1779 to 1787 inclusive, and hence known as the Carlisle table. This, however, is now being superseded by the mortality experience of life assurance companies, collected by the institute of actuaries, and published in May, 1869, exhibiting certainly the most correct standard of assured life in this country, and possessing, by reason of the great skill with which it has been graduated, a complete adaptation for all practical purposes.

The following are examples of *net* premiums calculated on the institute data:

SINGLE AND ANNUAL PREMIUMS FOR ASSURANCE OF £100, FOR WHOLE OF LIFE—INSTITUTE TABLE H^m, 3 PER CENT.

Age.	Single premium. £	s.	d.	Annual premium. £	s.	d.
20	32	17	9	1	8	7
25	35	16	3	1	12	6
30	39	4	5	1	17	7
35	42	19	0	2	3	10
40	47	1	2	2	11	9
45	51	13	5	3	2	3
50	56	12	3	3	16	0
55	61	17	3	4	14	6
60	67	5	6	5	19	9

For comparison, we append the corresponding premiums, calculated on the Carlisle data:

SINGLE AND ANNUAL PREMIUMS FOR ASSURANCE OF £100, FOR WHOLE OF LIFE—CARLISLE, 3 PER CENT.

Age.	Single premium. £	s.	d.	Annual premium. £	s.	d.
20	33	17	11¼	1	9	10½
25	36	17	10¾	1	14	0¾
30	40	2	6	1	19	0¼
35	43	7	11¼	2	4	8
40	47	3	2	2	11	11¾
45	50	17	8¼	3	0	4¼
50	55	8	7¼	3	12	5¼
55	60	18	11	4	10	10¾
60	66	10	7¼	5	15	9½

The question of the addition to be made to such (net) premiums is influenced by different considerations having regard to the practice of the office using the table.

Assurance companies are divided into three classes: 1. *Proprietary companies*, being those offices possessing a capital the property of the partners, and which, in addition to the accumulated premiums, is pledged to the policy-holders as a guarantee for the fulfillment of their claims. As the liability in such companies is limited to the net sums assured, the addition made to the premiums requires to be only such a proportion as will cover the actual outlay for management, and remunerate the shareholders for the risk of loss which they run by fluctuation in the mortality, or from bad investments. A comparison of the above premiums with the "non-participation" rates usually advertised, will show that the prevailing competition has induced the construction of tables very favorable to the public. 2. *Mutual offices*, where the members themselves constitute the company, being liable to each other for all claims. Here, in the absence of a capital, it is usual to adopt a scale of premiums known to be in excess of what is required to meet the sums insured. The profit arising therefrom is periodically ascertained, and allotted to the assured, most frequently in the form of "bonuses" or additions to the claims payable under the policies. Some companies doing a large business are of this class, and in point of stability and irreproachable management bear the highest character. 3. *Mixed companies* are proprietary companies charging such increased rates as will yield a bonus, but which, in return for the expenses of management and guarantee of their capital, reserve for their proprietors a stipulated proportion of the profits.

It would be beyond our province to deal with the comparative merits of these systems; undoubtedly, offices in which the assured participate in a part or the whole of the profits, have for some years back enjoyed the largest share of public support. Life-assurance, in the abstract, is certainly one of the greatest blessings of modern times. The extent to which it has been made available may be judged from the fact that the total sum, including vested bonuses, for which the existing offices are liable is above £343,000,000 sterling; the annual premiums payable, therefore, being above 10,000,000 —a sum equal to one-seventh of the net public revenue of the United Kingdom, or nearly half of the entire customs duties.

A greatly increased facility for making the necessary calculations in connection with life-assurance has been developed within the last few years by the use of "commutation tables," the invention of Mr. George Barrett, and of which a large collection, calculated by Mr. D. Jones, is published by the society for the diffusion of useful knowledge. For the best information on their construction, and other formulæ, the reader is referred to the standard works of De Morgan, Gray, Milne, and the transactions of the institute of actuaries, published quarterly. See POST-OFFICE INSURANCE.

3. *Marine Insurance.*—Although this branch of the subject does not possess such a general interest as the preceding, it is one that requires quite as great an amount of study and experience to insure its successful prosecution. In estimating the rate of premium, the insurer has to take into account not only the quality of the vessel covered, but the season in which she sails, the known character of her captain, the nature of the commodity carried, and (the contract being an indemnification both against the elements and the enemy) the state of our political relations. Nevertheless, losses at sea, like other incidents, are observed to follow certain laws, and if the average from which the value of the risk is deduced is of sufficiently broad basis, the result over equal intervals of time can be predicted with reasonable certainty. Until 1824 the only *companies* that could grant marine insurances were the Royal Exchange and London Assurance; and although the monopoly of these offices then ceased, and many other companies have since been established, a large portion of the business is, however, still transacted by individual insurers designated "underwriters." The underwriters of London form an influential society known as "Lloyd's" (q.v.), from having originally met in a coffee-house kept by a person of that name in Abchurch lane; and their extensive business, numerous agents for procuring information, and general influence in the mercantile community, have long gained for them a world-wide reputation. As a small number of

risks, viewed in connection with the great hazard to which property at sea is exposed, would not secure a safe average to the individual insurer, he finds it prudent to take but a fractional part of the entire risk on himself, and this is done by subscribing or "underwriting" the stipulated proportion on a policy drawn out for the whole amount to be covered. The necessity for circulating the policy for this purpose, and otherwise negotiating the insurance, has given rise to another business, that of the "insurance broker," with which, however, that of the underwriter is often combined. A system of mutual insurance is frequently carried out by associations of ship-owners forming "clubs," by which ship-owners arrange for the mutual insurance of their vessels, or shares of vessels—the various claims arising from loss or accident being met by *pro rata* contributions from the members in proportion to the sums respectively insured by them. Under this system the commission of the ship-broker, although included in the premiums, is saved by the owner.

Marine insurance differs from an ordinary fire insurance, in respect that in case of partial loss the underwriter pays only such a proportion of the sum insured as the damage sustained bears to its whole value at the time of insurance. See AVERAGE. In adjusting a partial loss, it is usual to deduct one-third of the nominal value, for new materials furnished to replace the older destroyed, and labor. Policies are of two kinds, "valued"—where the insurance is based on a specific bill of lading—and "open," where, in case of loss, the value of a ship with her stores is estimated as at the date of sailing, her freight at the amount she would have earned had the voyage terminated favorably, and her cargo at its invoice price, adding premium and all charges. The insurance is binding although the ship may have been lost when the policy was executed, but any warranty, if not true, is held to vitiate the insurance, even although the misstatement is not material to the risk. A stamp duty, now reduced to a nominal rate, is levied upon all marine insurance policies. In fixing its amount, the choice lies with the insured of doing so with reference to the *term* of insurance (not exceeding one year), or per single voyage, as follows: By time—for any term not exceeding six months, 3d. per £100; exceeding six months, 6d. per £100. By voyage, 3d. per £100. The rates for marine insurance have been much increased within recent years, in consequence of the increased number of shipwrecks. For the five years 1861 to 1865 inclusive, the annual average reported was 1538; from 1866 to 1870, 1862; and from 1871 to 1876, 2,536. The increase is partly explained by the inclusion of minor casualties in the latter period.

INSURANCE, IN LAW.—The law on the subject of insurance is substantially the same throughout the United Kingdom.

Fire Insurance.—The contract is generally preceded by proposals, in which case the proposals and policy of insurance must be read together, if the policy refers to these proposals. In order to insure property, the insurer must have some interest in the property insured, for otherwise there would be an inducement to commit arson. But he need not be owner; it is enough that he be accountable for the goods, or hold a lien on them, as a carrier, wharfinger, or bailee. Thus, many carriers keep up a floating policy to cover all goods which may happen to be on their premises within a given period. In all these cases, the words of the policy are the important points; and good faith is required in giving a correct description of the goods or premises, for every statement or representation as to anything that is essential is taken to be a warranty. The premises must not be materially altered during the risk, otherwise the policy will be void; but often the policy stipulates that alterations may be made on giving notice. A person in lodgings may insure his goods, and may safely call the house his "dwelling-house" for that purpose. But, as a general rule, great care must be taken by the insured not to misrepresent anything material, and not to conceal any extraordinary risk which the insurer ought to know. If a fire happens, either on the premises, or in neighboring premises, the insurer cannot set up in defense that it was caused by the negligence of the insured or his servant, for these are generally the very things which an insurance is intended to guard against. When a fire happens, it is generally always provided by the policy that notice of the loss is to be sent in, and full particulars of the damage done, and the alleged value, for it is only the actual loss which is insured against, and that only can be recovered. Thus, if a person insures his house or furniture for £600, and damage only to the extent of £50 has been done by fire, he can only recover the £50, for otherwise he would be better off than he was before the fire, and the contract is one merely of indemnity—i.e., it does not add to one's wealth, but merely secures against loss. It is often provided that the annual payment of the premium on a contract of insurance may be paid within 15 days after the first or previous year has expired, but it is dangerous to allow the payment to be postponed so long, for if a fire happen in the interval, the insurer will not in general be liable. Sometimes the same property is insured in several offices, but in that case the insured party can nevertheless only recover the value of his loss once and no more. He can sue either of the insurers, however, for the amount, if each policy cover the whole value, and the party who pays can then recover a proportionate part from the other co-insurers, for they all divide the loss among them. In cases where carriers and others take out a floating policy of fire insurance, the carrier can sue for the full loss of the goods, though far exceeding the extent of his own interest in them, but in that case the owner of the goods destroyed is

entitled to recover the balance from the carrier, even though originally he never gave authority to the carrier to insure them. And so, in like manner, if a person is insured, and recovers his loss from the insurer, and then sues a third party for the wrong which caused the loss, the insurer gets the benefit of what may thus be recovered, in diminution of his own loss.

Life Insurance is not a contract of indemnity, like fire insurance, and therefore a person may insure his life in as many insurance offices as he pleases, and his executors will recover the full amount insured from each of the insurers, regardless of the rest. In order, however, to insure a life, the insurer must either himself be "the life" or must have a pecuniary interest in the life. Thus, a creditor is entitled to insure his debtor's life; a wife may insure her husband's or her own, as if she were unmarried; and he may insure the wife's, if she has an annuity or property settled upon her for life, in which he has an interest. It is enough, also, that the interest of the insurer exist at the time the policy is entered into, and hence, though the interest afterwards cease, he will still be entitled to recover the amount, if the policy is kept up. Thus, a creditor whose debt is satisfied, may still recover on the policy. In entering into contracts of life insurance, scrupulous good faith is exacted in the description of the nature of the life insured, and any fraudulent misrepresentation in a material point is fatal to the insurer's right to recover. Some companies even go the length of inserting in their policies a clause, that if any misrepresentation (i.e., however trifling) be made, the policy will be void. But particular care should be taken to avoid such offices, for the policies taken out on such terms will generally be so much waste paper, as far as any security is concerned. At the same time, it is often dangerous for the insurer to treat lightly any misrepresentation, for in the end the question, whether it is material or not, will be one not for him or his executors, but for a jury, in case an action is brought. When the policy is effected through an agent on the principal's life, and the agent, unconsciously and without the authority of the principal, makes a misrepresentation, this will bind the principal. Where the person whose life is insured commits suicide, or is hanged, the policy is void, unless, in the case of suicide, he was in a state of insanity at the time. The policy, however, frequently has an express provision on this subject, the terms of which will be in that case all-important, and will govern the liability. In case the policy provides, as it often does, for its continuance, if payment after the expiration of the year is made within 15 or 21 days, it is dangerous to run the risk of this interval, for if the party dies during the 15 days before the premium is paid, the policy will not be set up by his executors coming forward to pay within those days. But the policy sometimes expressly allows of this, in which case it will be competent for the executors to make the payment. Life assurances are often assigned in security of a debt, in which case the assignor generally covenants to pay the premiums, so as to keep the security up; and failing payment by the assignor, the assignee is generally authorized to pay them himself, and recover the amount from the assignor. Notice of an assignment of a life policy should always be given to the insurance company, so as to let them know whom they are to pay.

Maritime Insurance is effected either on a voyage from one port to another, in which case it is called a voyage policy, or it is from one given day to another, in which case it is called a time policy. When the value of the property insured is expressed in the policy, it is called a valued policy, and when not so expressed it is an open policy. In general, wagering or gaming policies are void by statute, and the insurer must have some interest in the ship, such as the profits of the voyage or the freight. The insurance of seamen's wages, however, is not competent, for it tends to take away the stimulus of exertion from the crew. When the policy states a fixed sum as the value of the property, and expressly provides that the policy shall be deemed sufficient proof of interest, the insurance is an insurance "interest or no interest," and void by the statute. When the policy is a voyage policy, there is an implied warranty by the insurer that the ship is seaworthy at the commencement of the voyage, but there is no such warranty in a time policy. As is the case in fire and life policies, any fraudulent concealment of material circumstances which increase the risk will void the policy. But everything done in the usual course of navigation and trade is presumed to have been foreseen, and in contemplation of both parties. The policy is understood to cover the risk, not only of the perils of the sea, properly so called, but of ignorance or negligence on the part of the master or mariners. But the loss caused by mere tear and wear is not covered by the policy; the cause of the loss must be something fortuitous or accidental. Every policy impliedly assumes that the vessel will proceed straightway to her place of destination, without unnecessary delay. But sometimes, from unforeseen causes, it is absolutely necessary for the master to deviate, in which case, and in which only, the policy will remain good, strict proof, however, being always given of this imperious necessity. When the ship has been so injured or deteriorated as to render it hopeless to restore it, and the repairs will cost more than the ship is worth, the assured may abandon the ship, and claim for a total loss. See AVERAGE.

*INSURANCE (*ante*). *Fire Insurance.*—The processes in vogue in the United States are practically the same as in England, whence they are derived. In insurance

against loss by fire the governing principles are simple, and, except in cases termed "hazardous" and "extra-hazardous," are generally understood. As to these latter the provisions are purely arbitrary and as stipulated between the contracting parties, being based on the great variety of the influences which affect the character and extent of the risk. However, the degree of liability of insurers is to be liberally construed as regards the insured; and the accidental presence among insured property of articles rated hazardous or extra-hazardous, is not to be considered as vitiating a policy otherwise valid. And, on the same principle, the definition of "storing" certain classes of goods, is not contemplated as depriving the insured party of the right to shelter such goods for his own domestic use without additional premium. So, also, a description in a policy of a building insured is not to be deemed violated to the extent of affecting the insurance, on account of any relative alteration of location by reason of the acts of outside parties, as in the case of the erection of new buildings changing the condition described as isolation. Injury, or even destruction, without ignition, does not involve liability on the part of the insurer. It is the same with regard to the effect of lightning: there is no liability unless positive fire ensues. Explosion from gunpowder is rated as a loss, while that from steam is not. Even negligence on the part of the insured does not lessen the liability of the insurer, except where this affords suspicion of fraudulent design. And, also, a fire which results from insanity in the insured party is not accounted any defense of the insurer. Stipulations permitting the insurer to rebuild or repair, at his own option, are frequent incidents in the framing of policies. The general understanding of the law of insurance provides that, in the event of false representations on the part of the insured inducing the acceptance of a risk on terms which would not have been granted by the insurer on a truthful statement, the policy is vitiated. Such representations, or the conditions governing them, are termed material to the risk, and only such. The same rule applies also to concealment on the part of the insured: concealment through ignorance, or of facts not material to the risk, is not considered to impugn the validity of the policy.

The number of New York fire-insurance companies, in 1884, was 52; the number doing a fire-marine business, 9; total, 61. The number of fire companies of other states reported in the same year was 32; of fire-marine, 28; total, 60. Of New York mutual fire-insurance companies there were 7; of mutual fire-insurance companies of other states, 1; of foreign fire-insurance companies, 21; of foreign fire-marine, 3. Grand total of American fire-insurance companies doing business in New York, 92; of foreign, 21; of American fire-marine companies, 37; of foreign, 3. Final total of fire and fire-marine insurance companies doing business in New York, 153. It is shown by the annual report of the superintendent of the insurance department of the state of New York, for the year ending Dec. 31, 1884, that the number of fire and fire-marine companies doing business in the state was 153; that their combined capital amounted to $54,015,020; their gross assets were $140,338,552.66; liabilities, $50,797,433.31. The income of these companies for the year was $65,091,344.02; expenditures, $62,521,-874,98; net receipts over expenditures, $2,569,469.04. The standing risks of the companies included averaged $100 of insurance to $1.43 of net assets; the average premium being 86 cents on every $100 insured. Of the 173 companies considered, only 23 have had an existence dating back further than 1850, the three oldest being the Knickerbocker (1787), the Eagle (1806), and the Albany (1811). Of the remainder, 106 have been organized since 1860, 73 since 1870, and 52 between 1850 and 1860.—The great fire in Chicago, Oct. 8–10, 1871, causing a pecuniary loss of more than $?00,000,000, involved losses to the insurance companies amounting to $96,533,721, all of which but $6,000,000 was in United States companies. Of the companies involved, 57 were compelled to suspend. The loss by insurance companies after the great fire in Boston, Nov. 9, 1872, amounted to $52,676,000, of which $35,351,600 was borne by Massachusetts companies.

Marine Insurance includes in the category of losses covered by a policy those which may be occasioned by fire, barratry, piracy, theft, capture, arrest or detention—besides those caused by the action of the winds or waves, by sinking or grounding. An important principle obtains, permitting the insured to abandon the property in question, and declare a total loss, leaving the underwriter to make all that he can out of what remains in a damaged or otherwise unavailable condition. This abandonment, however, is allowed only when the partial loss exceeds 50 per cent of the value, and a provision of this character is usually inserted in the policy. In the United States there are two kinds of insurers—stock companies and mutual companies. In the first the profits are divided among the stockholders; in the second they accrue *pro rata* to the insured, or are applied to reduce the premiums paid. Marine insurance covers the ships, the cargo, the earnings for freight, and the profits upon the cargo. It is usual to place a valuation upon the ship, but the remaining losses become matters of proof. Illegality in the interest insured renders the contract void. Warranty is an important element in marine insurance, and is either express, which is made a part of the policy, or implied, as in the case of absolute seaworthiness at the time of insurance. Warranty covers the ownership, national character of the vessel, lawfulness of the cargo covered and the voyage, the taking of convoy, and the time of sailing. If the warranty be not justified the insurance does not attach. Implied warranty takes cognizance of misrepresentation, and also of concealment of material facts. It also requires that there

shall be no deviation from the course set down or implied, or from the stated destination. Such a change vitiates the insurance, and discharges the insurers from all subsequent risks. The illegality of a voyage or cargo discharges the insurer, not because of that fact, but because of its concealment, the law recognizing this as a risk not taken or implied in the contract. Insurance *from* a port begins on the actual departure of the vessel; insurance *at and from* a place begins when the destination named is reached by the vessel in good condition. A customary clause in insurance policies states that the insurance is in existence "until the ship be arrived and moored 24 hours in safety."—The number of New York marine insurance companies reported for 1884 was 5; other states 5; foreign marine, U. S. branches, 8; total, 18, doing business in New York. The total assets of these companies were $21,237,281.43; total income, $8,456,726.81; total expenditures, $7,178,203.39.

Life Insurance.—The germ of life insurance in the United States may be found in corporations chartered before the revolutionary war, one example of which was that organized in Philadelphia in 1769 for the benefit of the families of Episcopal clergymen, the rates and rules of which were suggested by Benjamin Franklin and his friend Richard Price of London. In the early part of the present century the Massachusetts Hospital Life insurance company and the New York Life and Trust company were chartered, but their plans were crude, and they failed to attract much attention. It was not until 1843–46 that the foundations of the business were fairly laid. During that period companies were formed in New York, Massachusetts, New Jersey, and Connecticut, the success of which soon led to the organization of many others; the public attention was gradually awakened to the advantages of this form of insurance, new companies were chartered on every hand, and the business, small at first, increased with great rapidity. Its gigantic development is indeed one of the marvels of the century. Its progress has been far more rapid than in England, France, or Germany.

Life insurance companies are of two general classes, proprietary and mutual. A proprietary company is constituted of those who furnish the capital necessary to the pursuit of the business. Insurers, as such, have no voice in the management, and no participation in the profits. In a mutual company, on the contrary, every policy-holder is an insurer as well as insured. The policy-holders exercise control through their power in the election of managers, and are entitled to their relative share of the profits. There are also companies in which the proprietary and the mutual principle are to some extent blended, those who furnish the capital required in the beginning, and who assume responsibility for the first expenses and early losses, covenanting to divide among the assured either the whole or a part of the profits.

The rates of insurance are determined by a table of mortality, compiled from the results of observation and experience, and showing the percentage of deaths likely to occur in a single year among a certain number of persons of a given age. The table, in other words, shows the average rate of mortality in the community. According to the "American experience table," of 100,000 persons 10 years of age, living at a certain date, it is assumed that 749 will die during the ensuing year; and this death-rate determines the risk assumed by the company, and in connection with other circumstances, the amount of premium to be paid by the insured. From this point the calculation proceeds year by year, for 85 years, when it is assumed that of the whole 100,000 persons only 3 will be living. The table shows the death-rate in every year between the two extremes of 10 and 95.

A condensed statement of the New York State companies is given in the following table, showing the number and amount of policies in force, gross assets, gross liabilities, and surplus, since 1870:

NEW YORK STATE COMPANIES.

Year.	No. of Companies	No. of Policies in Force.	Amount of Policies in Force.	Gross Assets.	Gross Liabilities Except Capital.	Surplus As regards Policy-holders.
1870	41	377,437	$1,039,662,517	$133,119,187.48	$113,445,941.60	$19,673,245.85
1871	39	387,365	1,059,593,408	150,543,823.89	129,218,264.04	21,325,559.85
1872	32	386,690	1,051,970,818	166,277,986.00	145,660,891.98	20,617,094.02
1873	27	385,781	1,051,099,364	180,895,403.21	158,516,342.25	22,379,060.96
1874	23	372,931	1,002,994,598	195,336,920.95	167,912,004.39	27,424,916.56
1875	20	357,619	966,725,968	203,132,743.60	174,378,107.52	28,754,636.08
1876	17	313,026	857,036,537	200,502,681.31	172,015,097.15	28,487,584.16
1877	15	284,786	782,895,565	201,342,802.04	171,812,054.50	29,530,746.54
1878	15	275,718	753,094,123	206,552,630.84	174,793,338.73	31,759,292.11
1879	12	261,799	730,648,500	202,562,831.91	169,675,366.78	32,887,465.13
1880	12	273,037	762,734,501	214,647,574.03	177,357,829.54	37,289,774.49
1881	12	289,172	815,276,388	225,966,512.02	187,050,970.48	38,915,541.54
1882	12	311,179	885,654,959	237,783,055.00	197,432,111.15	40,350,943.85
1883	12	341,397	979,070,669	251,973,410.10	209,556,977.30	42,416,432.80
1884	12	375,867	1,063,106,313	264,590,232.61	221,435,846.99	43,154,385.62

There are, 1885, 12 life-insurance companies in New York, and 17 in other states. Of these latter, the number of policies in force, 1884, was 374,700; the amount of policies in force, $807,621,746; gross assets, 226,897,486.74; gross liabilities, except capital, $188,240,681.20; surplus as regards policy-holders, $38,656,805.54.

The following is a recapitulation of the statements contained in the twenty-sixth report of the superintendent of the insurance department of New York. [Statistics regarding other than-life insurance are grouped here for convenience.]

Companies.	No.	Assets.	Liabilities Except Capital.	Capital.	Surplus.	Risks in Force.
Life	30	$492,240,596	$410,099,879	$4,405,500	$77,735,217	$1,981,843,311
Fire	153	178,414,266	71,184,627	58,815,020	48,414,619	9,908,024,865
Marine	18	24,135,844	6,775,128	3,094,280	14,266,436	226,652,552
Accident	9	4,988,476	1,690,893	2,457,560	840,023	337,129,169
Co-operative	127	3,690,063	1,747,520	.....	1,942,543	....
Totals	337	$703,469,245	$491,498,047	$68,772,360	$143,198,838	$12,453,649,897

Within a few years the legislatures of some of the states—notably those of Massachusetts and New York—have interposed for the protection of policy-holders thus situated. The New York statute, passed May 21, 1879, declares that "whenever any policy of life insurance hereafter issued by any company organized or incorporated under the laws of this state, after being in force three full years, shall by its terms lapse or become forfeited for the non-payment of any premium, or of any note given for a premium, or loan made in cash on the policy as security, or if any interest on such note or loan, unless the provisions of this act are specially waived in the application, and notice of such waiver written or printed in red ink on the margin of the face of the policy when issued, the reserve on such policy, including dividend additions, calculated at the date of the failure to make any of the payments above described, according to the American experience table of mortality, and with interest at the rate of 4½ per cent per annum, after deducting any indebtedness of the insured on account of any annual, semi-annual, or quarterly premium then due, and any loan made in cash on such policy, evidence of which is acknowledged by the insured in writing, shall, on demand made, with surrender of the policy within six months after such lapse, be taken as a single premium of life insurance at the published rates of the company at the time the policy was issued, and shall be applied, as shall have been agreed in the application and policy, either to continue the insurance of the policy in force at its full amount, so long as such single premium will purchase temporary insurance for that amount, at the age of the insured at the time of lapse, or to purchase upon the same life, at the same age, paid-up insurance payable at the same time, and under the same conditions, except as to payment of premiums, as the original policy." It is also provided that "if the reserve upon any endowment policy, applied as a single premium of temporary insurance, be more than sufficient to continue the insurance to the end of the endowment term named in the policy, and if the insured survive that term, the excess shall be paid in cash at the end of such term, on the conditions on which the original policy was issued."

Policies of life insurance are of various kinds, and they may be still farther varied by the addition of new or the suppression of old conditions, as the law permits. A whole-life policy is one in which the company binds itself to pay the representatives of the insured a certain amount of money at the end of the year in which he may die. The net premium for such a policy, the amount thereof being equitably fixed in view of all the elements entering into the case, may be paid wholly in advance or in annual or less frequent installments, as the parties may agree. A term-policy is one in which the company pledges itself to pay the representatives of the insured a certain sum of money at the end of the year in which he may die, provided his death occur within a certain number of years named in the policy. An endowment-policy is one in which the company promises to pay a fixed amount to the insured himself at a certain future time if he should then be alive. The premium may be paid wholly in advance, or at stated intervals, as the parties may agree. Children's endowment-policies are promises to pay, on a child's attaining the age of 18, 21, or 25 years, a specific amount. If the child die before the time named, the premiums paid will be returned or retained, according to the agreement of the parties as expressed in the policy. An endowment-insurance-policy combines the conditions of a pure endowment-policy with those of a term-policy, the company agreeing to pay a certain sum of money at a certain future time in case the person whose life is insured should then be alive, or at his death, if that should happen before the time agreed upon. A joint-life policy is one in which the company binds itself to pay a certain sum at the death of one or two or more persons named, on the joint continuance of whose lives insurance is made, Although there are still other varieties of policy, those above explained are the most important and fundamental.

In all cases where the continuance of the life of the insured is of pecuniary value to the company, the former is by the policy placed under certain conditions, a violation of which works forfeiture to the latter of the policy and of all sums that may have been

paid thereon. These conditions forbid the insured to travel in regions where human life is exposed to peculiar dangers, or to engage in certain hazardous occupations, or to take his own life. He is moreover bound to maintain the accuracy and truthfulness of all the declarations made in his application for insurance, any proved misrepresentation on his part working forfeiture. Suicide will not work a forfeiture if it be proved that the act was committed when the reasoning faculties of the insured were "so far impaired that he was not able to understand the moral character, the general nature, or the consequences and effect" of the same, or that he was "impelled thereto by an insane impulse which he had not power to resist." As to restrictions upon travel, residence, or occupation, they may be waived in any case under a written consent of the company. Policies are often surrendered after a certain number of payments have been made, the company paying therefor what is called the surrender value, which of course is generally a small sum compared with the aggregate of the premiums paid thereon. In some of the states the companies authorized to transact business therein are permitted to make a special deposit with the insurance department for the protection of policies duly registered in books kept by the department for that purpose, the state making itself responsible for the safe-keeping of such securities, which must always be kept equal to the value of the policies thus registered. See TONTINE; INSURANCE, CO-OPERATIVE, in *Supp.*

There are no statistics at hand which make a complete and accurate disclosure of the amount of business transacted by the life insurance companies of this country; but the following facts gathered from the last report of the New York superintendent indicate the vast extent of the business. The number of life insurance companies chartered by the state and doing business there in 1884 was 12; the number of companies chartered by other states and doing business there, 17—total 29. Number of policies in force in these companies in 1884, 750,567; total amount insured by these policies, $1,870,728,529; total assets of these companies, $491,487,719; gross liabilities, excepting capital, $409,676,528; surplus as regards policy-holders, $81,811,191; total amount of premiums, $72,016,264; total income, $96,974,376; excess of income over expenses, $20,526,784; total number of policies issued in 1884, 127,965, amounting to $321,310,170; policies terminated during the year, 83,055, amounting to $214,312,127; polices terminated by death, 9,183, amounting to $24,871,825; policies terminated by maturity, 4,781, amounting to $8,552,301; policies terminated by surrender, 12,524, amounting to $42,103,980. The figures from the last report of the insurance commissioner of Massachusetts are not less striking:—Number of policies issued in 1879 by the 30 companies doing business there, 66,388, amounting to $165,802,173; number terminated during the year, 66,033, amounting to $173,085,374; policies in force, 588,757, amounting to $1,427,178,306; claims by death in 1879, 7,273, amounting to $20,010,078; gross income of the companies, $75,509,926; gross expenditures, $66,734,530; gross assets, $401,172,216; gross liabilities, $362,734,965; surplus as regards policy-holders, $43,119,151; net present value of policies or computed premium reserve, $349,488,935. The policies are thus classified: Life-policies, 461,888, amounting to $1,185,338,649, with a reserve of $256,418,927. Endowment-policies, 109,361, amounting to $202,704,494, with a reserve of $90,123,671. All other policies, 17,508, amounting to $39,135,163, with a reserve of $3,534,006. Total reserve, $350,076,604. These figures do not represent the complete aggregate of the business of life insurance in the United States. It is believed that the whole number of lives insured is not less than 1,100,000, while the aggregate sum insured is fully $2,705,000,000—a sum amounting to one-twelfth of the entire capital wealth of the union. "There are in the country," says one authority, "more than half a million families who have voluntarily subjected themselves to a tax amounting in the aggregate to about $100,000,000 a year, and are under bonds, more or less, in the aggregate amount of about $400,000,000 to continue to pay this tax for life or for a longer period." These statements serve to show the enormous bulk of the business, and at the same time suggest to the political economist some problems of the highest importance to the public welfare, in respect to which great differences of opinion are known to exist.

Accident Insurance.—The system of insuring travelers and others against accident is of recent institution, as is that of the insurance of live-stock, plate-glass, and other fragile articles, and of steam-boilers against explosions. Accident insurance companies have become an important and popular institution in the United States, one such having paid nearly $4,000,000, during 15 years of its existence, in indemnity for injuries and death losses. Of these companies there are but 4 in the United States, and five or six in England, the latter being about 35 years old, and the American companies 17; the English companies, however, have far fewer insurers than those in the United States. See *Supp.*, page 881.

INTA'GLIO (Ital. "cutting in"), a term in art, the opposite of relief (see ALTO-RILIEVO), means the representation of a subject by hollowing it out in a gem, or other substance; so that an impression taken from the engraving presents the appearance of a bas-relief.

INTEGRAL CALCULUS. See CALCULUS.

INTEGRA'TION. See CALCULUS.

INTELLECT, the name for the thinking portion of our mental constitution. Mind contains three elementary constituents—emotion or feeling, volition or the will, and

intelligence or thought. See EMOTION, WILL. The intellectual powers are explained in part by their contrast with feeling and will. When we enjoy pleasure or suffer pain, we are said to feel; when we act to procure the one or avoid the other, we put forth voluntary energy; when we remember, compare, reason, our intelligence is exerted.

The powers of the intellect have been variously classified. Among the commonly recognized designations for them, we may mention memory, reason, and imagination, which imply three very distinct applications of our mental forces. Reid classified them as follows: Perception by the senses, memory, conception, abstraction, judgment, reasoning. Stewart added consciousness, to denote the power of recognizing our mental states, as sensation and perception make us cognizant of the outer world; likewise attention (a purely voluntary function, although exerted in the domain of intelligence), imagination, and the association of ideas.

It might be easily shown that in such a classification as the above there is no fundamental distinctness of function, although there may be some differences in the direction given to the powers. There is not a faculty of memory which is all memory, and nothing but memory. Reason and imagination equally involve processes of recollection. And with regard to the association of ideas, it has been shown by Mr. Samuel Bailey (*Letters on the Human Mind*) that if this is to be introduced into the explanation of the intellect, it must supersede the other faculties entirely; in short, we must proceed either by faculties (as memory, reason, etc.), or by association, but not by both.

In endeavoring to arrive at a satisfactory account of the human intellect, we must make a deeper analysis than is implied in the foregoing designations. We find at least three facts, or properties, which appear in the present state of our knowledge to be fundamental and distinct, no one in any degree implying the rest, while taken together they are considered sufficient to explain all the operations of intelligence, strictly so called.

1. DISCRIMINATION, or the consciousness of difference. When we are affected by the difference of two tastes or odors, or sounds or colors—this is neither mere feeling nor volition, but an intelligent act, the foundation of all other exercises of our intelligence. We must recognize the impressions on our senses as differing, before we can be said to have the impression of anything; and the greater our powers of discrimination in any department, as color, for example, the more intellectual are we in that special region. We could have no memory if we did not first recognize distinctness of character in the objects that act on the senses, and in the feelings that we experience. In some of the senses, discrimination is more delicate than in others; thus, sight and hearing give us a greater variety of impressions than taste or smell, and are therefore to that extent more intellectual in their nature. In the course of our education, we learn to discriminate many things that we confounded at first. Every craft involves acquired powers of discrimination as well as habits of manipulation. A man is in one respect clever or stupid, according as his perceptions of difference in a given walk are delicate or blunt.

2. The next great intellectual property is RETENTIVENESS, or the property whereby impressions once made persist after the fact, and can be afterwards recovered without the original cause, and by mental forces alone. When the ear is struck by a sonorous wave, we have a sensation of sound, and the mental excitement does not die away because the sound ceases; there is a certain continuing effect, generally, although not always, much feebler than the actual sensation. Nor is this the whole. After the sensation has completely vanished, and been overlaid by many other states of mind, it is possible to evoke the idea of it by inward or mental links, showing that some abiding trace had been left in the mental system. The means of operating this revival is to be found in the so-called forces of association. See ASSOCIATION OF IDEAS.

3. The last great fundamental fact of intellect is agreement or SIMILARITY. See ASSOCIATION OF IDEAS.

It is believed that these three properties, in combination with the other two powers of the mind (feeling and volition or will), are adequate to explain all the recognized intellectual faculties or processes—memory, reason, imagination, etc. Memory is almost a pure case of retentiveness, or contiguity, aided occasionally by similarity. Perception by the senses is only another name for discrimination, the basis of all characteristic mental appreciation of matter or mind. Judgment is either discrimination or similarity, according as it discovers difference or agreement in the things judged of.

Sir W. Hamilton, in departing from the common classifications of the intellect, adopted the following division into six faculties or powers: 1. The *presentative* faculty, by which he meant the power of recognizing the various aspects of the world without and the mind within, called in the one case external perception; in the other, self-consciousness, and sometimes reflection. 2. The *conservative* faculty, or memory proper, meaning the power of storing up impressions, to be afterwards reproduced as occasion requires. 3. The *reproductive* faculty, or the means of calling the dormant impressions up into consciousness again. These means are, as stated above, the associating principles. 4. The *representative* faculty, for which imagination is another name, which determines the greater or less vividness of the impressions or ideas thus reproduced. 5. The *elaborative* faculty, or the power of comparison, by which classification, generali-

ization, abstraction, and reasoning are performed. This, in fact, is one (not the only) application of the general power of similarity. Lastly, 6. The *regulative* faculty, or the cognition of the *à priori* or supposed instinctive notions of the intellect, as space, time, causation, necessary truths, etc. This corresponds to what in German philosophy is called the "reason," as contrasted with "understanding," which deals with experienced or contingent truth.

On examining the above distribution, it will appear that while the first faculty, the presentative, coincides with the primary fact of discrimination, the three subsequent—conservation, reproduction, representation—are merely modes or distinct aspects of retentiveness. All the three must concur in every case of the effective retention or recollection of anything. The last power, the regulative, is of course disputed by the opposite school, who refuse to recognize a primary or distinct faculty as giving birth to the ideas in question. See CONSCIOUSNESS, CAUSE.

INTEMPERANCE. See INTOXICATION.

INTENDANT, or INTENDANT MILITAIRE, an officer in the French army charged with the organization and direction of all the civil services attending a force in the field. The officers acting under his orders are those in charge of all the finance services, the provisions, stores, hospitals, artillery train, and transport departments, besides the interpreters, guides, and such like temporary services. The *intendant-en-chef* of an army is the representative of the minister of war; and, short of superseding the general's orders, can exercise, in case of need, all the functions of that high officer of state. The intendance is divided into intendants, ranking with general officers, sub-intendants with cols., and assistant-intendants with majs.; besides cadets, who receive no pay, and constitute a probationary grade.

Intendant was the name given in France before the revolution to the overseer of a province. Such permanent officers were first appointed by Henry II. (1551). Under the complete system of centralization established by Richelieu, these intendants, as they were now called, became the mere organs of the royal minister, to the exclusion of all provincial action. To them belonged the proportioning of assessments, the levying of soldiers, etc. The national assembly, in 1789, established in each department an elective administration. Napoleon virtually restored the intendants, but exchanged the hated name for that of *prefects* (q.v.).

INTERAMNA. See TERNI.

INTERCALARY (Lat. *intercalaris,* for insertion), an epithet applied to those months or days which were occasionally inserted in the calendar, to make it correspond with the solar year. See CALENDAR.

INTERCESSION, DOCTRINE OF. Scripture, in many places, represents Christ, after having finished his redemptive work on earth, and ascended into his state of glory and exaltation, as ever pleading with God on behalf of those whom he has redeemed by the shedding of his blood (Rom. viii. 34; Heb. vii. 25; 1 John ii. 1). Theologians say, however, that we are not to suppose that God needs to be interceded with, as if he were still reluctant to forgive men, or that Christ's intercession makes him more merciful than before. They tell us, that since it is evident from the whole tenor of the New Testament, as well as from a multitude of special passages, that the penal sacrifice of Christ on Calvary reconciled God to man, we must regard the intercessory work of Christ rather as serving to illustrate the eternal holiness of God and the changeless love of the Savior, and as intended to keep continually in view the sacrifice of atonement on which it is founded. The doctrine of the intercession of Christ is held both by Protestants and Roman Catholics; but the latter, in addition, believe in the efficacy of the intercession of the Virgin and the saints, who, however, do not directly intercede for men with God, but with the Savior, the sinless One, who alone has the ear of the King of the universe.

INTERCOLUMNIATION, in classic architecture, the distance between the columns of a building, measured at the bottom of the shaft. The intercolumniation varies in different examples, but the most favorite distance for the columns to be placed apart is 2¼ diameters of the column, which by Vitruvius is called *eustyle.* The central intercolumniation of a colonnade is frequently made wider than the others when required for access to a gate or door. In Doric architecture the intercolumniation is decided by the spacing of the triglyphs, the columns being usually placed under the center of every other triglyph.

INTERCOMMUNING, LETTERS OF, was an ancient writ issued by the Scotch privy council, warning persons not to harbor rebels.

INTERDICT, an ecclesiastical censure or penalty in the Roman Catholic church, consisting in the withdrawal of the administration of certain sacraments, of the celebration of public worship, and of the solemn burial-service. Interdicts are of three kinds—*local,* which affect a particular place, and thus comprehend all, without dis-

tinction, who reside therein; *personal*, which only affect a person or persons, and which reach this person or persons, and these alone, no matter where found; and *mixed*, which affect both a place and its inhabitants, so that the latter would be bound by the interdict even outside of its purely local limits. The principle on which this ecclesiastical penalty is founded may be traced in the early discipline of public penance, by which penitents were for a time debarred from the sacraments, and from the privilege of presence at the celebration of the eucharist; but it was only in the mediæval period that, owing to circumstances elsewhere explained (see EXCOMMUNICATION), it came into use as an ordinary church censure in the then frequent conflicts of the ecclesiastical and civil power. It was designed to awaken the national conscience to the nature of the crime, by including all alike in the penalty with which it was visited. The most remarkable interdicts are those laid upon Scotland in 1180 by Alexander III.; on Poland by Gregory VII., on occasion of the murder of Stanislaus at the altar; by Innocent III. on France, under Philippe Auguste, in 1200; and on England under John in 1209. The description of England under the last-named interdict, as detailed by some of the contemporary chroniclers, presents a strangely striking picture of the condition of the public mind, which it is difficult with our modern ideas fully to realize or to understand. It would be a great mistake, however, to suppose that during the continuance of an interdict the people were *entirely* destitute of spiritual assistance. The interdict mainly regarded the *solemnities* of public worship; it was permitted to administer baptism, confirmation, and the eucharist in all cases of urgency; to confess and absolve all who were not personally the guilty participators in the crime which the interdict was meant to punish; to celebrate marriage, but without the solemnities; and to confer orders in cases of necessity. And under the popes, Gregory IX., Innocent III. and IV., and Boniface III., still further mitigations of its rigor were introduced, one of which was the removal of the interdict and restoration of public worship on certain great festivals, especially Christmas, Easter, Pentecost, Assumption, and All Souls. The council of Basel enacted very stringent rules as to the use of this penalty, and in later times the general interdict has been entirely disused, although occasionally, in very special circumstances, and to mark the horror of the church for some enormous crime, instances are still recorded in which a particular place or church has been visited with the penalty of a local interdict.

INTERDICT, in Scotch law, is an order issued by the court of session to stop or prohibit a person from doing an illegal or wrongful act. It is obtained on presenting a note of suspension and interdict to the lord ordinary on the bills. The party applying for it must have both title and interest—that is, he must be more than a mere stranger. The principles on which it is granted in Scotland are substantially the same as those in which the parallel writ of injunction (q.v.) is granted by the court of chancery in England.

INTERDICTION is a process peculiar to the law of Scotland, by which persons of imbecile minds may either restrain themselves, if conscious of their weakness—then called voluntary interdiction—or may be restrained by the court of session *in invitum*, then called judicial interdiction. The effect of both is to appoint trustees or interdictors, whose consent is necessary to all deeds whereby the imbecile's heritable estate is alienated. See IMBECILITY.

INTERESSE TERMINI, a term sometimes used in English law to denote the kind of interest which a lessee takes in land when the lease is executed. It amounts to a right of entry on the lands, which is assignable.

INTEREST, the payment due by the borrower of a sum of money to the lender for its use. The interest of £100 for one year is called the rate *per cent;* the money lent, the principal; and the sum of any principal and its interest, the amount. The current or market rate of interest fluctuates widely, by reason, not, as is often supposed, of the extent of the supply of money, but of the variable rates of profit, as in Holland, where it has always been comparatively low, and in our own time in Australia and California, where mercantile profits being in excess, the rate of interest is relatively high.

A strong prejudice against exacting interest existed in early times, arising from a mistaken view of some enactments of the Mosaic law;* and as late as the reign of Edward VI. there was a prohibitory act passed for the alleged reason that "the charging of interest was a vice most odious and detestable, and contrary to the word of God." Calvin, the famous reformer, was one of the first to expose the error and impolicy of this view, although a series of enactments, known as the usury laws, to some extent perpetuated it, by an attempted restriction of the maximum rate to be paid. In England this rate was fixed by act 21 James I. at 8 per cent. During the commonwealth it was reduced to 6 per cent; and by the act 12 Anne, c. 16, to 5 per cent, at which rate it stood till 1839, when the law was repealed. In Scotland any charge for interest was prohibited before the reformation. In 1587 the rate was fixed by law at 10 per cent;

* See Exodus, xxii. 25; Leviticus, xxv. 39; Deuteronomy, xxiv. 19: the application being to money lent for the relief of distress, and not advanced to the borrower that he might improve it.

in 1633 at 8 per cent; in 1661 at 6 per cent; and by the act of Anne, as above noted, at 5 per cent. It is now admitted that the operation of such laws tended only to raise the real rate of interest, by driving men in distress to adopt extravagant methods of raising money—the bonuses thus paid being really and in effect an addition to the nominal interest.

Interest is computed on either of two principles: 1. Simple interest, where, should the interest not be paid as due, no interest is charged upon the arrears. Although this mode of reckoning has little to recommend it in reason, it is adopted in many transactions, and receives the sanction of the law. The computation of simple interest is easy, it being only necessary to calculate the product of the principal, the rate per cent, and the period in years and fractions of a year, the result, divided by 100, giving the sum required. Thus, wanted the interest of £356 6s. 8d. for $3\frac{1}{2}$ years at 4 per cent.

$$356\tfrac{1}{3} \times 3\tfrac{1}{2} \times 4 \div 100 = £49\ 17s.\ 9d.$$

2. Compound interest is the charge made where—the interest not being paid when due—it is added to the principal, forming the amount upon which the subsequent year's interest is computed. The rules for most readily making computations by compound interest can only be effectively expressed algebraically, and, using the symbols in article Discount, we annex a few of the elementary formulæ.

1. Since £1, increased by its interest r, at the end of one year becomes $1 + r$, this amount at the end of the second year becomes $(1 + r)^2$, and generally at the end of the nth year $(1 + r)^n$. Example: To find the amount of £1, improved at 5 per cent for six years. r, the interest for £1, is .05, and $n = 6$; therefore $(1.05)^6 = 1.34$, or £1 6s. 9½d. 2. Since £1 becomes in one year $1 + r$, it is found by ordinary proportion that the fraction of £1 which will amount to £1 in a year is $(1 + r)^{-1}$ $\left(\text{i.e., } \frac{1}{1 + \text{r}}\right) = v$; and reasoning as above, the sum which will amount to £1 n years hence is $(1 + r)^{-n} = v^n$. 3. The amount of £1 in n years being $(1 + r)^n$, it will be seen that the excess of this sum over the original £1 invested, or $(1 + r)^n - 1$, is the amount of an annual increment or "annuity" of £r for the period, and from this, by proportion, is deduced the formula for the amount of an annuity of £1 for the same time, being

$$\frac{1}{r}(1 + r)^n - 1.$$

4. Reasoning as in (3), the present value of an annuity certain of £1 for n years, or the sum which, improved at interest, will meet the annuity is

$$\frac{1}{r}\left[1 - \frac{1}{(1 + r)^n}\right] = \frac{1 - v^n}{r}$$

Tables for the four classes of values above described, based on various rates of interest, are given in most works on annuities.. Those by Mr. Rance are computed for each quarter per cent from ¼ to 10 per cent. It may be useful to note two results that can be easily deduced from a table of the present values of annuities (4). 1. The annuity which £1 will purchase for any number of years is the reciprocal of the corresponding value in such a table. Example: A person borrows £100, to be repaid by annuity in 15 years, with interest at 5 per cent; required the annuity? The present value of an annuity of £1 per annum for that period, at the rate stated, is £10.38, and $100 \times 10.38^{-1} = 9.6342 = £9\ 12s.\ 8\frac{1}{4}d.$ 2. To find the annuity which in a given period will amount to £1—subtract from the annuity that £1 will purchase, ascertained as above, r, the interest of £1 for a year. Example: The annuity which, paid for 15 years, will amount to £1, taking interest at 5 per cent, is—

Value of annuity which £1 will purchase as last found.....	£.096342
Subtract r, at 5 per cent.....	.050000
Annuity required.....	£.046342

Or £4 12s. 8¼d. will amount in 15 years to £100.

Interest, in Law.—In England and Ireland, when a debt has been for some time due, there is no obligation imposed on the debtor by the common law to pay any interest whatever, though the sum has been fixed and often demanded. The creditor can always sue for his debt, which is his proper remedy, but he derives no benefit from giving time to his debtor. Therefore, if interest is to be paid, this must be, as a general rule, by virtue of express agreement. Nevertheless, there has always been one or two exceptions to this rule. Thus, by the usage of merchants, it has always been usual, when an action has been brought to recover the amount of a bill of exchange or promissory-note, for the jury to add interest from the time it was due; but even this was not a matter of course—it was a matter of discretion for the jury, and was generally withheld when there was delay in bringing the action. Another exception existed in the case of money due upon an award by an arbitrator, in which case interest is due from the day when the award was made. A third exception was in the case of a bond for money, in which case interest was added from the day it ought to have been paid. And lastly, if a surety had to pay

money for his prineipal, he could recover it back with interest. In all other cases, if there was no express agreement about interest, none could be claimed. If, however, there was a course of dealing between the parties, or a usage affecting a particular trade to give interest, then, without express agreement, this was understood. A recent statute somewhat amended the above defect of the common law, for by 3 and 4 Will. IV. c. 42, s. 28, a jury may now add interest at the ordinary rate on all debts or sums certain, which are made payable under some written instrument at a certain time; and even if not due under a written instrument, then if a written demand has been made, expressly giving notice that interest will be eharged from and after the date of the demand, if not paid then, interest will also be due. But even in these last eases it is discretionary in the jury to give the interest, and therefore it is not claimable as a matter of course. As regards compound interest, it is *à fortiori* not claimable in any case, exeept where it has been expressly stipulated for, or where there is in some particular trade a definite custom to pay interest, and such eustom must always be proved.

It ought also to be added that the court of chancery has always been in the habit of charging trustees who have misapplied funds with 5 per cent interest on the amount, and also compound interest; but in simple cases of retaining moneys in hand without investing them, they have been eharged 4 per cent. Formerly it was prohibited by statute in England to lend money on the security of real estate at a higher rate than 5 per eent; but these statutes have been abolished, and now any person may borrow or lend at whatever rate of interest he can agree with the other party. Pawnbrokers are allowed to eharge interest not exceeding a fixed sum. See PAWNBROKING.

In Scotland the law has always been much more liberal in allowing interest to be claimed on outstanding debts, for there the converse principle was acted on, that on nearly all debts whatever, interest was elaimable either by statute or by eommon law. Thus, interest is due on bills of exehange, on the amount contained in a horning or charge to pay, on sums paid by eautioners, on the priee of lands sold, on money advanced at request, on the priee of goods sold, if the usual time of credit has expired, and generally on all debts which there has been delay in paying.

INTEREST (*ante*) is founded upon the principle that, as eapital is the fruit of labor, its possessor is therefore entitled to compensation for its use. A general denial of this, by destroying one of the most powerful motives to industry, enterprise, frugality, and foresight, would, it is now generally believed, hinder the advancement of the human raee in knowledge and virtue, if indeed it did not give it a direct impulse toward barbarism. It is the belief of the most enlightened political economists of the present day that much of the legislation upon this subject, intended as it has been to protect the poor from the assumed rapaeity of the rich, has nevertheless been in reality a mistaken and injurious kindness—an attempt to regulate by law that whieh might better be left to the discretion of the parties directly eoncerned. The interests of capital and labor are not conflicting but identical, and any legislation resting upon a contrary assumption is now seen to be injurious alike to both. The opprobrium east, in the name of Christianity, upon the money-lender in the early eenturies of our era, originated unquestionably in motives of benevolenee; but it is now seen to have been founded in ignorance of the divine law of political economy. The money-lender may indeed abuse his power to the injury of the borrower, as the borrower may sometimes deeeive the lender, but this is only the abuse of a thing not bad in itself. It was the growth of commereial enterprise under the influence of the Protestant reformation that first effectually undermined the aneient doctrines upon this subject; and the eeonomists of the sehool of Locke, Hume, Adam Smith, and finally of Jeremy Bentham, did much to set the truth in a clear light. More and more the legislation of the world in respect to this subjeet is advancing toward an unreserved recognition of the prineiple that the rights of eapital and labor rest upon one and the same foundation, and that the money-lender is not, any more than the money-borrower, neeessarily a wrong-doer. In England, as long ago as 1854, all laws intended to prevent the taking of higher than legal rates of interest were repealed, borrowers and lenders being left free to make such agreements as might be mutually satisfactory. Some of the Amerieau states have, within a few years, followed the example of England, and the tendency of publie sentiment in the United States is believed to be in the same direction. The generally prevailing rate of interest in the United States is 6 per cent, though in some of the states it is higher. In some states a particular rate is declared applicable to ordinary transactions where there is no specifie agreement, but the parties are at liberty to stipulate for any rate that to them may seem good; if no rate be mentioned the legal rate is understood to be implied. No agreement to pay a higher than the legal rate can be enforced, unless such agreement is expressly authorized by statute, the established presumption of the law, in the absence of such legislation, being that such a rate is usurious. If there is a stipulation to pay a higher than the so-called legal rate of interest to the time of the maturity of the obligation, and nothing is said of the rate to be charged after that period in case of default, the weight of authority favors the conelusion that theneeforth the interest must be reckoned at the statutory rate. Sometimes an obligation to pay interest arises from well-established usage when there is no written eontraet to that effeet; as where a debt is due upon aeeount, and it is the general custom, within the knowledge of the debtor, to charge interest upon sueh claims after a eertain time. Again, interest is

recoverable as damages for failure to pay a debt or claim at the time it becomes due, though there be no contract to that effect, such interest being reckoned at the legal rate from the time when the debt should have been paid. For example: suppose a note of hand, without interest, to be due upon a certain day; if there be default of payment at the appointed time, the courts will award interest from that date until the note is paid. If judgment have been obtained for a debt, interest on the same is reckoned at the legal rate from the day the judgment was rendered. The common law upon this point has in this country generally been reversed. Upon unliquidated demands—i.e., demands, the amount of which, and the date when payment is due, have not been precisely fixed—interest is not collectible. If a man convert to his own use the personal property of another, interest upon the value of such property accrues from the time of its conversion. The custodians of trust funds and trustees of every sort will be required to pay interest in cases of maladministration of the sums intrusted to them. If a guardian or executor fail in his duty to account for or invest the trust-funds in his possession within a reasonable time, he is liable to pay interest thereon as damages for his delinquency, and, if the case be flagrant, compound interest may be charged. In ordinary transactions compound interest is not favorably regarded by the courts and is seldom enforced. Even a special agreement to pay interest at the compound rate will generally be treated as not binding. An obligation to pay compound interest may, however, arise from the usages of trade, and in such cases courts will exact payment. In the case of foreign contracts interest will be allowed at the legal rate of the place where the contract is to be performed. Specific legacies draw interest from the testator's death, but on general legacies, payable at a particular day, interest is not allowed till that day arrives.

INTERFER'ENCE, a term employed to express the effect which rays of light, after being bent or diffracted, produce on each other. If the rays meet after diffraction, their light, when allowed to fall on a surface, will be divided into bars or stripes, alternately light and dark, as is shown in the article diffraction (q.v.). This phenomenon has been made the touchstone of the two rival theories of light, the *undulatory* and the *emission.* According to the former, it is thus explained: If two luminous waves simultaneously impel a molecule of ether, its motion will be the resultant of the original impulses; and if the two motions (as in the case of diffraction) be nearly in the same direction, the resultant will be nearly their sum; if opposite, their difference. Thus, when a particle has begun to undulate from the action of a luminous wave, and if, while in motion, another wave impinge upon it, the result will be increase of light, if the motion of the second wave conspire with that of the first; but a decrease, if they oppose each other; and total darkness, if, while opposing, they are equal in velocity. Let d be the distance corresponding to a complete period of vibration; then, if the second wave impinge upon the molecule after it has accomplished one or more whole vibrations corresponding to the distances d, $2d$, $3d$, etc., and has returned to its original position, the two waves will evidently conspire together, and produce more violent motion; but if it impinge on the molecule, when the latter has only accomplished half a vibration, corresponding to distances $\frac{1}{2}d$, $\frac{3}{2}d$, $\frac{5}{2}d$, etc., then the wave will oppose the particle's return to its original position; thus producing diminution of motion, or, if equal, rest. In the former case, the intensity of light is increased; in the latter, diminished; and if the undulations are of equal velocity, the light is doubled in the first case, and destroyed in the second. The emission theory totally fails to explain interference. In light of different colors, the value of d differs for each color, being least for violet, and greatest for red light. The principle of interference accounts in the most satisfactory way for the colors of thin plates. the fringes that accompany shadows, etc.; and its explanation forms the most decisive reason yet known for adopting the *undulatory* in preference to the *emission* theory of light. See LIGHT.

INTERJEC'TIONS are exclamations expressive not so much of a thought as of an emotion—as, ah! alas! hurrah! pooh! They are, therefore, hardly parts of speech, and never form part of a sentence. They are, in fact, more akin to the sounds emitted by the lower animals than to articulate language.

INTERIM, in the history of the reformation, the name given to certain edicts of the German emperor for the regulation of religious and ecclesiastical matters "in the meantime" (Lat. *interim*), till they could be decided by a general council. The first is the *Ratisbon interim,* the result of the deliberations of a commission appointed during the diet of Ratisbon (Regensburg) in 1541, of which Eck, Pflug, and Gropper were the Roman Catholic, and Melanchthon, Bucer, and Pistorius the Protestant members. On the greater number of doctrinal points the commission found it possible to agree on terms which might be deemed consistent with the views of both parties; but as to the sacraments and the power of the church, the differences were irreconcilable. By the Protestants in general, the whole movement was looked on as a scheme to entrap them into a formal return to the church of Rome. At the next diet, at Augsburg in 1548, a new interim was by the emperor's command prepared by Pflug, Helding (Sidonius), and Agricola. It is called the *Augsburg interim.* In it the use of the cup by the laity, the marriage of priests, and some other minor things, were conceded to the Protestants; but it met with very general opposition, particularly in the n. of Germany, and was revoked in 1552. By the exertions of the elector Maurice of Saxony a third interim, the *Leipsic interim,*

was adopted at the diet of Leipsic Dec. 22, 1548, which guarded the Protestant creed, but admitted great part of the Roman Catholic ceremonial, and recognized the power of popes and bishops when not abused. But the offense given to the more zealous Protestants by this interim, which Melanchthon, Bugenhagen, and Major supported, led to division in the Protestant church.

INTERIOR, Department of the. See page 881.

INTERLA'KEN ("between the lakes"), a village of Switzerland, is delightfully situated on the right bank of the Aar, in a plain between lakes Thun and Brienz. Along the *Walnut avenue* or *highway*, between the lakes, there is an almost uninterrupted line of hotels or *pensions*. Within a few miles of the village are many of the most wonderful sights that the country affords. Ten miles southward is the Staubbach (the "sky-born waterfall"), with its perpetual iris; a few miles further s., and in full view from the village, are the magnificent Jungfrau and several other remarkable peaks of the Bernese Alps. The visitors are the chief source of income to the inhabitants, who number only (1880) 2,000.

INTERLINEATIONS in a deed are additions or corrections written either on the margin or between the lines. In England interlineations in a deed are not fatal, provided only it is proved that they were made before executing the deed. It is usual to put the parties' initials opposite the place where the interlineations occur, in proof of this, or at least by way of memorandum. In affidavits and other documents, the initials should also be put at the places interlined. In Scotland, if the interlineation is at all material, it ought to be signed by the parties, and the fact mentioned in the testing clause, otherwise it will be presumed that the interlineations were made after the execution, and will vitiate the deed.

INTERLOC'UTOR, in Scotch law, means a finding or judgment of a judge or court in a cause. In England the word is not used.

INTERLOCUTORY JUDGMENT, in England, Ireland, and Scotland, means a judgment which is not final, but which is merely a step in the suit or action. So as to interlocutory decrees or orders.

INTERLUDE, in music, is a short melodious phrase played by the organist (generally extempore) between the verses of a psalm-tune. In the German Protestant church, the interlude (or *zwischenspiel*) is generally played between each line of the verse, to give the congregation time to breathe. To accompany the *choräle* of the Lutheran church with scientific and appropriate interludes is reckoned in Germany the chief test of a good organist.

INTERMARRIAGE. The intermarriage or intercourse of near relatives has been universally believed to entail degeneration upon the offspring, and the act has been condemned and prohibited. The physical deformity and mental debasement of the Cagots of the Pyrenees, of the Marrons of Auvergne, of the Sarrasins of Dauphiné, of the Cretins of the Alps, and the gradual deterioration of the slave population of America, have been attributed to the consanguineous alliances which are unavoidable among these unfortunate peoples. More recently, the same opinion has been supported by the history of deaf-mutism and of idiocy. Of 235 deaf and dumb children whose parentage could be traced, 70, or nearly 30 per cent, were the offspring of the intermarriage of blood-relations. But in opposition to, and apparently destructive of such an hypothesis, may be adduced the unimpaired condition and symmetry of the Jews, of the small Mohammedan communities in India, of the isolated tribes in North America, among whom the repeated intermarriage of near relatives is compulsory. Moreover, this opinion does not hold in the analogous cases among the inferior animals, as the Arabs can trace the pedigree of their most valuable horses to the time of Mohammed, whilst they avoid all crossing; the stud-books in this country record the ascendants of racers for 200 years, and show the perpetuation of the qualities of strength, and weight, and fleetness by propagation within the endowed family, both Eclipse and Childers being descended from a horse the offspring of a parent and foal; and the descendants, again, of these horses, which still maintain the highest estimation, afford many instances of very close breeding; and lastly, the Durham ox and the Ditchely sheep were the result and triumph of breeding in and in. The present state of the controversy, as it has been recently conducted in France, may be summed up in the proposition that consanguineous alliances are not necessarily hurtful to the offspring, provided the parents be healthy and robust; but the observations of Devay and Bemiss in America show that such generalizations should be received with caution. It should be added that even were it established that mental disease generally followed such unions, the transmission might depend rather upon the increased certainty of reproducing hereditary tendencies than upon the violation of any physiological law. —Steinau, *Essay on Hereditary Diseases and Intermarriage;* Devay, *Du Danger des Mariages Consanguins* (1862); Boudin, *Dangers des Unions Consanguins*, etc.; *Annales d'Hygiène Publique* (1862); Ribot's *Herédité* (1874); etc.

INTERME'DIATE HARMONIES, in music, are the harmonies introduced between extreme non-related keys, while modulating from the one key to the other, which harmonies prepare the ear to receive the new key.

INTERMEDIATE STATE. See Eschatology and Future Life.

INTERMEZ'ZO, a short dramatic comic scene, with singing, peculiar to the Italian stage, and introduced between acts of an opera or play.

INTERMIT'TENT FEVER. See AGUE.

INTERMITTENT FEVER (*ante*), a form of fever characterized by febrile paroxysms and intermissions. It is also called fever and ague, chills and fever, shaking fever, and periodical fever. It belongs to the class of malarial fevers which are supposed to originate in the action of *marsh miasm*, which latter is, again, supposed to be produced principally by decomposing vegetable matter in swamps and low grounds. Post-mortem examinations in the few cases which are fatal reveal a condition of the liver, spleen, and brain called *bronzing*, and the presence of a dark pigment in the blood. More or less of this condition probably exists in cases not fatal. There is frequently an enlargement of the spleen, but this is not particularly characteristic of the disease, while the bronzing is. Intermittent fever may be divided into two distinct periods, the period of the paroxysm, and the period of intermission; or, the active and the quiescent. The paroxysm is divided into three distinct stages—the cold, the hot, and the sweating stage. There are usually some premonitory symptoms, but except in a few cases they are slight and often unnoticed. The marked premonitory symptoms are headache and weariness, accompanied with yawning, but they are not characteristic, and serviceable only to those who have had, or suspect an attaek of, the disease. The *cold stage* is ushered in with a feeling of chilliness in the back and limbs; there is also pain in these parts and headache. The skin and to some extent the subcutaneous muscles are contracted, producing that condition known as "goose flesh." A thermometer placed in the axilla, however, indicates an inerease rather than a diminution of temperature, although exposed surfaees and the extremities are cooler than natural. Rigors, accompanied by regular shaking of a rhythmical character, are sometimes violent. The pulse is quickened, but small and feeble; the faee very pale, and if the attack be severe, livid, as are the roots of the nails, the circulation in the fingers being almost completely suspended. The duration of this stage is variable, sometimes a few minutes, sometimes two hours; the average being about 40 minutes. The seeond or hot stage usually follows gradually, with flushings of heat, until a decidedly febrile condition is developed. The cold stage is sometimes absent, but is replaced by a nervous condition, or drowsiness, and sometimes coma (q.v.). This occurs in those cases which are called *malignant intermittent*, and which will be noticed further on. *Hot stage.*—The fever which follows the cold stage is often intense; the pulse is full and bounding, and the face crimson. The pain in the back and limbs ceases, but the headache continues. A thermometer placed in the axilla indicates a temperature of from 105° to 106° F., and there is great thirst. This stage lasts from three to eight hours, when the sweating stage commences, perspiration appearing first on the faee, then passing to the body and limbs, while the heat, headache, thirst, and all other unpleasant symptoms gradually depart, the patient often passing into a natural slumber. This stage usually lasts three or four hours, when the paroxysmal or active period is over. The sweating is often, but not always, very profuse.

The period of intermission now commences, and aceording to its duration, before another paroxysm comes on, the disease reeeives certain distinguishing names, denoting certain types. If the paroxysm come on every day it is ealled a *quotidian* type. If the intermission be of two days' duration, that is to say, if the paroxysms succeed each other on the third days, the type is *tertian*. If three days intervene, or when the paroxysm reappears on the fourth day, the fever is said to be of the *quartan* type. The quotidian and tertian types are the most common, the quartan is rather rare. Statistics of the U. S. army show that the quotidian and tertian types oecur with about equal frequency, but it is probable that the cases which come under observation in private practice would place the tertian form in the majority. Of 98,237 cases in the U. S. army, 51,623 were of the quotidian, 44,857 of the tertian, and 1757 of the quartan type. Cases have been reported of a quintan, a sextan, a heptan, and even an octave type, but in these cases it is not certain that there is sufficient regularity in the recurrence to justify a type title. The type frequently changes from a quotidian to a tertian, and sometimes to a quartan, or in the other direction; but a lengthening of the period of intermission is more common, especially if the patient be under mild treatment: active treatment generally eradicates the disease or causes a cessation of the paroxysms before a change of type can take place. The type may also be compound, that is, the quotidian paroxysm may occur twice every day, in which case it is called a *double quotidian*. In a *double tertian*, a paroxysm may take place every day, but they will have a different character on succeeding days; in other words, there will be two distinct forms of the tertian type, alternating with each other. Sometimes a double tertian occurs in which there are two paroxysms every other day. Another form is a *double quartan*, when a paroxysm occurs on two successive days, while there is none on the third day, the paroxysms being unlike. A *triple* quartan has also been observed, in which there are three successive paroxysms on three successive days, but differing from each other, as in the double forms. These forms are all rare, except the double tertian, which is not infrequent. In the period of intermission the condition of patients varies; some feel quite well, while others experience many unpleasant symptoms, such as loss of appetite, debility, headache, nausea,

and sometimes palpitation of the heart. There is necessarily a more or less anæmic condition, even when the natural or individual force of the person impels him to shake off his unpleasant symptoms, and maintain his bodily and mental functions by activity. Every person laboring under the protracted influence of malarial poison generating intermittent fever has more or less of a *pinched* appearance. All the functions of nutrition are to a certain extent interfered with, sometimes producing enlargement of the spleen. The general appearance observed in persons laboring under intermittent fever is called by physicians *malarious cachexia*. Protracted continuance of the disease is liable to bring on a variety of organic difficulties, according to the constitution of the individual, the liver probably being the organ most often implicated. The causes of intermittent fever are obscure in one sense, yet the conditions which produce the disease are well known. Though marsh miasm is known as the principal factor in the generation of the disease, we cannot precisely state what marsh miasm is. Although, as will be noticed further on, certain low forms of vegetable life have been discovered and claimed to be present wherever intermittent fever prevails, and to be absent when it does not prevail, the observations have not yet been verified; and awaiting further investigations, we can assert only that there is in marsh miasm such a disease-generating force. Wherever marsh miasm can be excluded as a factor, there intermittent fever is always absent. There are, however, marshy districts where intermittent fever does not prevail. It appears, therefore, that the marsh miasm which generates the fever is of a peculiar nature, or that the emanations of marshes are not always miasmatic; that there must be something added to the exhalations which arise from simple vegetable decomposition or decay, or that some peculiar organism must be developed which when taken into the system will produce the disease. Viewing the question in this light, the theory of the generation of intermittent fever which was proposed by Dr. J. H. Salisbury (an account of which is contained in the *American Journal of Medical Sciences* for Jan., 1866) deserves attention and careful test. Certain facts have long been known in regard to many of the conditions which propagate the disease. It does not prevail in high mountain regions where the soil is barren, or upon extensive sandy sea-beaches, where it is impossible for any of the products or peculiar accompaniments of marsh decomposition to be present. Therefore that a certain influence is generated in marshy districts which is capable of producing malarial fever cannot be doubted. The disease does not occur in those zones where the temperature never rises above 60°. Malarious influences increase as we approach the equator, and are noticeable along tide-waters where the shores are low and alternately inundated and left exposed to the heat of the sun. Turning up the soil or excavating for the streets of cities and for railroads, the clearing away of forests, and the consequent exposure of the rich soil to the action of the sun's rays, often converts a salubrious section into one exceedingly unhealthful. Many facts connected with malarial influence are worthy of notice. The malarial poison, whatever it is, seems to have a specific gravity. When it travels over the earth it keeps near the surface; persons occupying the upper stories of houses located on a malarious plain are less affected than those living nearer the ground, particularly if they remain in-doors after sunset, for it is another well remarked fact that night air contains more of the malarious influence than the air of day does, as though a degree of sensible moisture were necessary for its propagation. Now, the theory of Dr. Salisbury meets many of these facts. His observations were made on low-lands in the Ohio and Mississippi valleys, principally in the vicinity of Lancaster, Ohio. He discovered certain organisms in the expectorations of persons laboring under the disease, which he also found in the soil, or collected upon glass plates in the vicinity of the residence of the patient. He suspended glass plates at different elevations over different localities, and found that there was a certain level above which the malarial influence did not pass, and that this level was also the limit to the passage of these organisms. He also found that the organisms were not present in the dry air of day, arising only in the damp air of evening or night. The organisms in question are a species of algæ resembling *palmellæ*, which he found upon the surface of the soil, particularly where it had been disturbed, as by the feet of cattle, or by wagons. They have the appearance of green, red, and white incrustations, resembling a saline deposit from evaporation. Dr. Salisbury has given the name *gemiasma* to the plant, to which he also applies the name of *ague plant*. He enumerates the following species: *G. rubrum*, *G. verdans*, *G. paludis*, *G. plumosis*, *G. alba*. Dr. Salisbury remarks that the lesions in intermittent fever, are confined mostly to epithelial structures, and therefore the liver and spleen are organs that suffer specially, and refers to a case reported by Morgagni in which the spleen weighed 8 lbs., and to one by Bailly in which it weighed 10 lbs., and was a mere mass of pulp. Dr. Salisbury found the ague plant in the urine of the patients; if the plant be the cause of intermittent fever, this would form a diagnostic symptom of value in obscure cases. Dr. Salisbury states (Oct., 1880) that subsequent observations have, in his opinion, confirmed the results of his investigations as published in 1866.

Treatment.—It may be said with great confidence that intermittent fever is one of the few diseases which the physician expects to combat successfully by the administration of drugs. There are drugs which have a specific curative action, and also those which have a decidedly beneficial effect as adjuvants. The principal specific remedy is *Peruvian bark*, or its alkaloids, which are commonly preferred. Of these, *quinine* and *cin-*

chonidia, usually in the form of sulphates, are most used. Quinia has been long in use as an antiperiodic, but cinchonidia is a recent introduction. It is much less expensive than quinia, and by many its action is preferred, as being milder and more permanent. The dose of quinia varies with the constitution and condition of the patient, but as a general statement, in a case of well developed tertian, the cure will require from 20 to 60 grains of quinia sulphate, or one-half more of cinchonidia, divided into 5 or 10 repeated doses; and it is advisable to give in connection some alkaline salt, as the bicarbonate of soda, or of potash; or when a laxative effect is desired, Rochelle salts. It is often advisable to precede the administration of the anti-periodic with a cathartic, and for this purpose there is nothing better, if the patient will consent to take it, than powdered rhubarb, in the dose of a dram or more. Less may be given if combined with one-half or one grain of podophyllin; or podophyllin may be given alone, or combined with five or six grains of calomel. The quinia or cinchonidia is often given to the extent of producing ringing in the ears, one of the symptoms of *quininism*. This, however, is not always advisable or necessary; a continued use of one of these remedies during convalescence, in conjunction with some preparation of iron, generally meets the demands of the case.

Dr. Gaspar Griswold of New York has used the alkaloid of jaborandi, in the form of *muriate of pilocarpin*, in a number of cases of intermittent fever, and his reports in the *Medical Record* indicate that the remedy possesses great value. It does not appear that the remedy has any specific action on the *materies morbi* of the disease, as many suppose to be the case with quinia, but that it breaks up the stages of the attack in consequence of its powerful diaphoretic qualities. Dr. Griswold administers it hypodermically, using from one-sixth to one-fifth of a grain, dissolved in water at the commencement of the cold stage. The effect is to bring on the second or sweating stage in a few minutes, thus abolishing the hot stage.

The results in one of the cases which occurred in 1879 are given in the following table:

1st paroxysm, no treatment.

Time.	Temp. of Axilla.	
11.15 A.M.	101½	Chill.
11.45 "	103	Chill.
12.15 P.M.	103½	Chill.
12.45 "	104	Chill.
1.15 "	105	Fever.
1.45 "	104½	Fever.
2.15 "	103½	Fever.
2.45 "	102½	Sweat.
3.15 "	100½	Sweat.
3.45 "	99	Sweat.

2d paroxysm.

Hypodermic injection of ⅕ gr. of pilocarp. mur. at 11.09 A.M.

Time.	Temp. of Axilla.
11.05 A.M.	102
11.35 "	100½
12.05 P.M.	99½
12.35 "	99¼
1.05 "	99¼
1.35 "	99
2.05 "	99½
2.35 "	99¼
3.05 "	99
3.35 "	99

The patient had no more chills during the next ten days without further treatment, and was discharged as cured. These results, if verified, may change somewhat prevalent views in regard to the therapeutic action of quinia. Here we have a remedy which seems to act by interrupting the stages of the paroxysm; but jaborandi may possibly have some specific action also.

Malignant intermittent or *Pernicious intermittent fever*, sometimes called *Congestive* intermittent.—Intermittent fever, ordinarily not a dangerous disease, has a form the cause of which is not always discoverable, but which is one of the most fatal diseases. Fortunately the cases are rare, except during certain seasons, in very malarious regions. It is more prevalent in the southern and western states, as the level portions of Alabama, Mississippi, Louisiana, and about the estuaries of some of the creeks and rivers emptying into the great lakes. Sometimes the malignant character of the attack is not manifested in the first paroxysm, or even the second, and is thus likely to deceive the practitioner; but it often reveals itself in the first paroxysm, and may then cause death. Prof. Drake states that the first symptoms, however, are more or less anomalous, and will give warning, especially if other cases have taken place in the neighborhood. The symptoms vary, and yet to the experienced are characteristic, taken in connection with the history. The patient bacomes rapidly delirious, or stupid, or comatose; or coma may follow delirium. Sometimes epileptiform convulsions occur. In some cases there is very great sweating, and sometimes the extremities become as cold as marble. Sometimes there is vomiting and purging, followed by a collapse, as in cholera. Sometimes the urine fails to be secreted, and frequently there is albuminuria. There is often hemorrhage from the stomach, bowels, or kidneys, or all of these organs. The pulse is small and irregular, and there is often great difficulty in breathing. If the pulse gets fuller the patient may get relief, but if the paroxysm passes off without much improvement, the next one will not unlikely prove fatal. The pathological conditions found after death do not differ essentially from those found after death from ordinary intermittent fever, except that they are intensified; and it is possible that the disease is caused by the generation within the system of an excessive amount of malarial poison, the eliminative functions of the system not having acted. During the prevalence of intermittent fever, if there be a tendency to the

malignant type, the number of these cases will be diminished by adopting, generally, prompt, active, and sustaining treatment. During the paroxysm the application of warmth in various ways, by warm blankets, bottles of hot water, hot bricks, or other materials, as sinapisms, should be made. The administration of chloroform, in dram doses, is recommended on good authority, the dose being repeated, if necessary, till anæsthesia is produced. But the chief reliance for the expulsion of the disease is in the administration of quinia or cinchonidia, and the action of either of these medicines will be much promoted by giving it in connection with those simple alkalies which have been found to give activity to the secreting functions of the skin and glandular organs, such as the carbonates of soda and potash. Ammoniacal carbonate may also be found useful. Wine is demanded, probably in every case, and all possible means of supporting the strength should be employed. The diet should be carefully selected with great regard to the condition of the patient. Beef-tea, the staff diet of the sick-room, is not to be omitted, and steak may be chewed and the juices swallowed if the patient have any appetite for it. All articles of food should be liberally salted. The axiom that recovery from disease consists in regeneration of tissue should not be lost sight of in the treatment of this disease more than in any other. The nervous system should be supplied with the best products of nutrition. During a state of coma, or at other times, if the stomach be irritable, quinia may be administered by means of a hypodermic syringe. The drug is dissolved in water containing 10 drops of sulphuric acid to the ounce, and from 20 to 40 grains are sometimes administered. The chief objection to this mode is in the bulk of the injection, and the inflammatory swellings that are liable to ensue. But these must be regarded in connection with the dangerous condition of the patient. Tepid bathing must not be neglected. If recovery takes place, but the malarious cachexia remain, a change of air and climate will be advisable, and the place selected should have an atmosphere as pure as possible. Colorado possesses the climatic conditions desirable in such cases.

INTERNAL REVENUE. See REVENUE.

INTERNATIONAL COPYRIGHT. See COPYRIGHT, *ante*.

INTERNATIONAL DATE-LINE.—The line at which dates change, being made later by one day by those who cross the line from east to west, and earlier by one day by those crossing it from west to east.

If a person start at midday, that is, when the sun was shining perpendicularly on the meridian that passes through the place of starting, and travel westward, keeping pace with the sun, thus keeping the sun directly over the meridian of the place at which he might be, he would make a complete journey around the globe in twenty-four hours, and return to his place of starting at noon the next day. Twenty-four hours would have passed, but to the traveler the sun would have been shining perpendicularly as at noon all the time; and the question arises, when or at what point did the traveler change from noon of one day to noon of the next? For instance, if he should start at Monday noon and keep the sun in the zenith, he would arrive at the place of starting Tuesday noon—it would be noon-day to him during the whole journey of twenty-four hours—Monday noon would change to Tuesday noon without an intervening night: where would the change occur? It is to him apparently still Monday noon, and to obtain the correct date he must drop a day. The reason for dropping a day can be more fully shown as follows:—Remembering that the earth makes one complete revolution on its axis in twenty-four hours, and thus the sun in its apparent diurnal revolution moves over 360 degrees of space in twenty-four hours, it thus moves over 15 degrees of space in one hour, from which it is evident that the difference in longitude which causes the difference in the relative time, may be estimated in time, allowing 15 degrees to an hour, or one degree to four minutes. Therefore, suppose a man starting from any given point, travel one degree w., his watch, instead of marking 12 o'clock at noon, according to the correct time at that place, would mark four minutes after twelve. Let him travel w. 15 degrees, and he will find that 1 o'clock by his watch will be noon-day by the sun. Let him go on to 120 degrees, and when the sun is in the zenith his watch will indicate eight o'clock P.M. Completing his journey around the globe, he will have gained, in this manner, twenty-four hours. From this it will be seen that in order to obtain the correct date twenty-four hours must be subtracted from his time. On the other hand, if a person could travel eastward at the same speed with which the sun apparently travels westward (the same rate of speed with which the earth revolves on its axis), if he should start on his journey at noon-day, he would meet the sun when exactly on the opposite side of the earth from the place of starting, and continuing the journey would again meet the sun at the place of starting, thus seeing three noon-days within the twenty-four hours, or apparently gaining a day. This we know to be impossible, since only twenty-four hours of time have passed, while in reality an extra period of light has been gained, and thus to obtain the correct local date a day must be added to your time.

From this we see that, for every time a person travels around the earth in either direction, there is a difference in time of one day, and the result is the same regardless of the rate of speed. To avoid the confusion of dates which must necessarily result from this constant gain on one side and loss on the other, it has been proposed to determine

upon some line at which eastern bound travelers shall add a day, and westward bound travelers shall drop a day from their reckoning, and thus prevent a disagreement in regard to the day of the week. The line at which this addition or subtraction shall be made is what is meant by the date-line.

The fact and necessity of such a date-line may be shown in a way with which all are familiar. Take a simple problem in arithmetic on "longitude and time." "When it is 9 o'clock A.M., May 1, at Singapore, long. 104° e., what time is it at Manila, long. 121° 30′ e.?" The difference of longitude estimated *eastward* from Singapore is 17° 30′. The application of the ordinary rules of arithmetic gives for an answer, 10 h. 10 m. May 1. But the difference of longitude estimated *westward* from Singapore is 342° 30′, giving for an answer 10:10 A.M., April 30. This shows that when the time of day at one place is known, and the longitudes of both places known, the time of day at the other may be obtained in two ways, viz.: by using the difference of longitude estimated west, or estimated east. But the dates thus obtained differ by one day; which is correct? Sometimes the one and sometimes the other. In the problem just considered the latter result is correct. In such problems the difference of longitude must be taken in such a direction as not to come across the date line; or if the date-line be crossed, the dates must be changed in accordance with the above definition.

The calendars in general use throughout the civilized world originated in Rome. The one most generally adopted is the Gregorian. Russia, and all other countries of the Greek church, still use the Julian calendar. The two calendars differ as to the day of the month, but agree as to the day of the week. Which ever calendar is used, all places received their date from Rome. Places receiving dates by westward communication from Rome would naturally be considered earlier in time, at the same instant, and those places receiving dates by eastward communication would be considered later in time at the same instant; and date-lines would naturally occur where these directions of communications met. Such is the fact. The western part of Europe, the islands of the Atlantic ocean, the whole of South America, and the greater part of North America, have received civilization by westward communication from Rome. Therefore there is no date-line in the Atlantic or in America (since the occupation of Alaska by the United States). The eastern part of Europe and Asia received civilization by eastward communication from Rome. Date-lines, therefore, occur in the Pacific ocean between islands that have received dates by eastward, and those that have received by westward communication. By connecting these lines we have an irregular line whose general direction is n. and s., and which may properly be called the date-line, though not always, and perhaps not usually, the line where *vessels* change dates. The north-western part of North America, otherwise known as Russian America, now Alaska, received civilization by eastward communication, therefore their dates would correspond with those of Asia; but the north-western part of British America received civilization by westward communication, thus the dates there would correspond with eastern America and Europe. From this we see that two neighbors, one living in Russian America and one in British America, might differ as to the day of the week. This was often the case before Alaska was purchased from Russia by the United States in 1867. The dating in Alaska has been put back to conform with the rest of the United States. The date-line, therefore, must now pass through Behring's straits, or, according to some authorities, just w. of the strait. North of the strait some authorities claim that it passes between Plover and Herald islands, which holds, as the former was discovered from the eastern continent and the latter from the western. South of the strait it passes w. of Clarke's or St. Lawrence island. Thence it passes w. of Gores island; thence south-westerly between the Aleutian islands and Asia. It thence passes south-westerly some degrees e. of cape Lopatka and the group of Kurile islands, thence just e. of the Japan islands, Jesso and Niphon, keeping w. of Guadalupa and Margaret's islands, but e. of Bonin, Loo-Choo, and Patchoo islands, and s.e. of Formosa. This island was unknown to the Chinese until about 1403. About 1634 the Dutch established themselves here, and built fort Zeland on a small island commanding the harbor of the capital Taeman. After retaining possession for 28 years, they were expelled by Coxigina, a famous Chinese rebel, whose successors ruled until 1683, when it was taken by the Chinese. It thus retains the same dating as the Chinese nation proper. The line then passes through Bashee channel, just n. of the Bashee islands. It enters the China sea e. of Hong Kong. It then passes s. just w. of the Philippine islands, but keeps e. of Palawan island. It is here that it reaches its most western point, being about 116° e. longitude. It then takes a south-easterly course, passing through the Sooloo islands, s. of Mindanao and n. of Gilolo. Thence it passes e. nearly parallel with, but just n. of, the equator to a point about 165° just n. of Shank island; thence south-easterly, leaving High island, Gilbert archipelago, Taswell islands, and the De Peyster group on the n.e.; thence to a point n.e. of the Navigator or Samoan islands to longitude about 268° w.; thence it turns s., keeping e. of the Navigator, Friendly, Tonga, Vasquez, Kermadec, and Curtis islands, and w. of the Society islands, and Cook's or Harvey islands; thence it continues s., bearing a little to the w., so as to cross, according to some authorities, Chatham island; thence to the south pole. By following this description the line can be traced with a pencil on a map of the world.

The popular idea seems to be that 180° e. or w. of Greenwich is the point at which

the change occurs. National pride is not likely to give England the right to consider the 180° w. of Greenwich as having any special advantage over the 180° w. of Berlin, Paris, Vienna, Rome, Madrid, St. Petersburg, or even Washington, D. C. A vessel sailing from San Francisco to Samoa would reach its destination before reaching 180° w. of Greenwich, and would find itself a day behind the Samoans in date. Other illustrations might be given to show that the 180° fiction does not remove the difficulty. For instance: the Spaniards on the Philippine islands still use the latest dating; a navigator sailing from San Francisco to these islands, who had changed his date at 180°, would find himself a day ahead on his arrival. This would not be the case if he had sailed to Yokohama or Hong Kong, which have the advance dating. In making a round trip from San Francisco to Yokohama, a navigator might keep his dating unchanged and thus be right on his return, or he might make two changes, skipping a day on his outward voyage at any time or place on the way, and dropping a day at any time or place on his return. Cruising vessels are said not to regard the 180° in their dates, as they might in some cases have to change their dating very frequently. See PRIME MERIDIAN CONFERENCE.

Numerous proposals have been made for an initial meridian for all nations, in order to dispense with the many now in use, but no satisfactory proposition has yet been made. M. de Beaumont suggests one passing through Behring's strait. Rome has also been suggested for various reasons, among them the fact that it was the home of old and new style, and need not offend national pride; and because it is nearly on the meridian of Copenhagen, Uraniburg, Leipsic, Munich, Padua, Venice, Christiana, Gotha, Nerona, and Modena, and not far w. of those of Berlin, Prague, Naples, and Palermo. This meridian band has been called the great street of the world's observatories. With this suggestion there has been coupled the suggestion that Rome be made 180°, and that 0° be left unmarked, passing somewhere along Behring's straits, and that e. and w. as applied to longitude be dispensed with.

Another point may be noted. Taking the line as described, its most western point on the Philippine islands is 117° e., and the most eastern point is 168° w. longitude. Using these limits, from the time any given time or day begins to the time it ends is 53 hours. Or taking the eastern part of Alaska, as was formerly done, which is 130° e., and a day remains on the face of the earth for 55 hours and 32 seconds. Taking the former, we can see that for 5 hours each day, by the same calendar, there are three different dates in different parts of the world. These hours in Washington, D. C., and all places on or near that meridian, are from 6:10 A.M to 11:10 A.M. For instance, during these hours of to-day, Jan. 1, 1881, with us, the Navigator islands are in the early part of Jan. 2, and the Philippine islands are finishing Dec. 31, 1880.

INTERNATIONAL LAW is divided into public international law and private international law. 1. *Public International Law*, or the law of nations, consists of those rules which independent nations agree among themselves to be just and fair in regulating their dealings with each other in times of war and peace. The mode in which they arrive at this common understanding of what is just and fair, is by comparing the opinions of text-writers who profess to set forth and collect the general opinion of civilized nations, for all these writers appeal ultimately to the principles of natural reason and common sense, as the test of what they profess to be the proper rule. Treaties of peace, alliance, and commerce also define and modify the existing international law as between the contracting parties. The decisions of prize-courts, which profess to proceed on principles of natural justice, of universal application, are also declarations of this international law. The leading doctrines thus adopted are as follows: A sovereign state is one which governs itself independently of foreign powers. In the event of a civil war in one nation, other nations may remain indifferent spectators, and treat the ancient government as sovereign, and the government *de facto* as entitled to the rights of war against its enemy. If the foreign state profess neutrality, it is bound to allow impartially to both belligerent parties the free exercise of those rights which war gives to public enemies against each other, such as the right of blockade, and of capturing contraband and enemy's property. Where a colony or province asserts its independence, and has shown its ability to maintain this independence, the recognition of its sovereignty by other foreign states is a question of policy and prudence only; but until acknowledged, courts of justice and private individuals are bound to consider the ancient state of things as remaining unaltered. When a change occurs in the person of the sovereign, or in the internal constitution of a state, all treaties made by such state which were not personal to the former sovereign, continue to be binding on the succeeding sovereign.

All sovereign states are, in the eye of international law, on a footing of equality. Each state has the right to require the military service of its own people for purposes of self-defense, and to develop all its resources in the manner it thinks fit, so long as it does not interfere with the same equal rights of other nations. When, however, one state unduly aggrandizes itself, and augments its military and naval forces beyond what all the other states consider proportioned to its position, then those other states have some ground to interfere. This, however, is considered a delicate business, and not to be attempted rashly; and it is difficult to define what is a just ground of interference. The acquisition of colonies and dependencies has never been considered a just motive for such interference. According to Wheaton (*International Law*, 88, 6th ed.), interferences

to preserve the balance of power have been generally confined to prevent a sovereign, already powerful, from incorporating conquered provinces into his territory, or increasing a dictatorial influence over the councils and conduct of other independent states. The aversion to interference has no doubt in modern times, become stronger and stronger; and it may be taken to be now almost an axiom, that no foreign state has any just ground of interfering in what is merely an internal revolution of a state, or a mode of readjusting its own constitution; in short, each state ought to be allowed to manage its own internal affairs, and to choose whatever form of government best suits the people, for the exercise of this right can, in general, nowise affect other states.

Each state has the natural right to make its own laws regulating the property and status of all the subjects within its territory. On the high seas, both the public and private vessels of every nation are subject to the jurisdiction of the state to which they belong. Offenses there committed against its own municipal laws give to the state to which the vessels belong jurisdiction; but no right of visitation and search belongs to a nation in time of peace, though piracy and other offenses against the law of nations, being crimes not against any particular nation, but against all mankind, may be punished by any state in which the offenders can be found. The traffic in slaves is, however, not classed with piracy by the law of nations, though nations may declare it to be so as regards their own subjects; and they may also enter into a compact as to that matter, as has been done by Great Britain with other nations. With regard to crimes and their punishment, though each state will punish all crimes by whomsoever committed, if committed within its own territory, and also all crimes committed in its public and private vessels on the high seas, or in a foreign port; likewise all crimes, wherever committed, by one of its own subjects, yet it cannot arrest one of its own citizens if he is within the territory of another state; to do so would be an invasion of the municipal law of that state; hence it can only arrest its criminals in foreign states by the leave of such state, and such state is not bound to accede to such a request. Hence arises the expediency of two states entering into an extradition treaty, by which they bind themselves to give up to each other criminals who have committed certain specified offenses.

There are certain usages or ceremonials of respect shown by one nation to another in certain circumstances, and these are founded on the theory of the equality of sovereign states. As regards the right of precedence among kings, emperors, and princes, there is nothing settled and binding, except, perhaps, that Catholic powers concede the precedency to the pope. But as regards minor matters, it is the settled courtesy for one nation to salute by striking the flag or the sails, or by firing a certain number of guns on approaching a fleet or a ship of war, or entering a fortified port or harbor. Sometimes these ceremonials are regulated by express treaty, as, for example, as regards the maritime honors formerly exacted by Denmark from vessels passing the sound and belts at the entrance of the Baltic sea.

The rights of states in time of peace consist of the rights of legation and of negotiation. Every independent state has a right, in point of courtesy and usage, to send public ministers or representatives to, and receive ministers from, any other sovereign state with which it desires to maintain relations of peace and amity. See AMBASSADOR; ENVOY; CHARGÉS D'AFFAIRES; CONSUL.

When war is commenced between two countries, there are certain rights acknowledged to exist towards each other. Before war is proclaimed, intermediate methods are sometimes adopted, with a view to avoid that last necessity; these are laying an embargo on the ships or property of the offending state found in the territory of the offended state; also taking forcible possession of the thing in controversy, also retaliating and making reprisals. When war is once declared, the first step is to seize and confiscate all the enemy's property within the territory. It becomes unlawful for the subjects of each belligerent state to trade with the subjects of the other belligerent. The test of whether a person is a subject of either state is generally his domicile; so the character of ships depends on the national character of the owner, as ascertained by his domicile. As regards the conduct of one belligerent state against the other, some writers have laid it down, that everything is fair against an enemy, and that no means of punishment are too severe; but this rigid rule has been qualified by the more humane practice of modern times. Instead of putting prisoners of war to death, the practice is to exchange or discharge them on conditions. Instead of indiscriminate destruction of the enemy's property, temples, public edifices, monuments of art and science, are spared. The laws of war are more unsparing at sea than on land; the practice prevails of commissioning privateers to prey on the commerce of the enemy, the captor being in general entitled to the property. When property taken is recaptured, states differ as to the mode of dealing with the property recaptured. The validity of a capture at sea must be determined in a prize court of the captor's country or of an ally, and the prize court professes to act on universal principles applicable to all countries.

As regards neutrals in time of war, the leading doctrines are stated under the heads CONTRABAND OF WAR; BLOCKADE; FOREIGN ENLISTMENT ACT.

At the congress of Paris, 1856, the ambassadors of Great Britain, France, Russia, Austria, Prussia, Turkey, and Sardinia, agreed to a joint declaration, modifying the state of the laws of war as follows: 1. To abolish privateering; 2. To adopt the maxim, "free ships, free goods"—i.e., an enemy's goods shall not be taken in a neutral ship unless

they are contraband of war; 3. To allow a neutral's goods in an enemy's ship to be free except as to contraband; 4. To abolish blockades unless they are real and kept up by an effective force. These declarations were not acceded to by America, because it objected to the abolition of privateering, so that though, in the event of war between the countries which agreed in the declaration, the above modifications will probably be adopted, this will not be the case in the event of America being at war with one or other of these parties. See Wheaton's *International Law;* Mackenzie's *Studies in Roman Law;* Macqueen's *Chief Points in the Laws of War.*

2. *Private International Law* is that collection of laws that regulates the mode in which ordinary courts of justice administer the remedies and give effect to the rights of parties where such rights were acquired partly or wholly in a foreign country, and where different remedies must otherwise have necessarily applied. In such cases, the court which administers the remedy, acting on what is called the courtesy of nations, or *comitas gentium,* endeavors to put the parties in the same position as if they were still bound by the foreign laws, and gives effect to those laws so far as they do not conflict with the native laws in essential principles. The fundamental doctrine which underlies this branch of law is, that each subject of a foreign independent state is entitled to have the protection of his own laws, so far as is compatible with the equal independence of the state whose courts administer the remedy, and hence, though a court can in general only administer the laws of its own state, it may, *pro hac vice,* incorporate part of the foreign laws as part of its own remedies. Accordingly, in carrying out this doctrine, certain fair and equitable rules are adopted in dealing with foreigners in certain situations, the chief of which arise out of the heads of marriage, death, intestacy, and remedies generally.

This branch of the law has been long cultivated by the continental countries of Europe, where many learned jurists have discussed its principles. But probably owing to the insular position of the United Kingdom, little attention was given to it there; and indeed no work even incidentally treated of the subject until Mr. Justice Story, an American judge, in 1834, first produced his celebrated treatise on the *Conflict of Laws,* and gave to British lawyers a methodical view of the results at which foreign jurists had arrived. In the United States, where each independent state had its own municipal laws, which often differed materially from those of the other federal states, it was natural and inevitable that some system should be adopted as to the way each state should deal with the rights of persons coming from the neighboring states; and hence America preceded England in the development of this branch of the law. Story's work is still the standard authority in the United Kingdom. Since the laws of Scotland differ in many respects from those of England and Ireland, and each country has its own courts exercising independent jurisdiction, it is a matter of course that questions of conflict under these two codes of law should often arise. Not only do the courts of Scotland and England treat the laws of the other country as foreign laws, and deal with each other in much the same way as they would deal with France, or any other foreign country, but the laws in other respects are materially different, and give rise to conflicts. On this particular branch of the law affecting England and Scotland, Mr. Paterson's *Compendium of English and Scotch Law* contains a summary of all the material differences existing between the laws of these two countries, that are of the greatest practical importance to residents in the United Kingdom.

As regards marriage, the leading doctrine of the *comitas gentium* is, that it is immaterial in what part of the world a man is married provided he is married, and when once married according to the law of the place where he then is, such marriage will be held a valid marriage all the world over, and wherever he goes. This doctrine, however, is qualified in this way, that the *lex loci contractus*—i.e., the law of the place where the marriage was contracted—shall regulate the validity of the marriage only so far as any ceremony is essential to the institution of marriage; but it is not allowed to dictate who the parties are who may validly marry, nor to vary any essential part of the contract. The reason of the latter qualification is, that there may be rules of policy in one country which may prohibit marriages between certain persons, or may prohibit certain consequences, and therefore the evasion of the native law by persons going abroad for such a purpose is not to be tolerated. For example, in Scotland, marriage is treated as a mere contract, which requires no particular ceremony beyond mere mutual consent; while in England some ceremony is absolutely essential—viz., the ceremony of the marriage being celebrated in a parish church by a priest, or in a superintendent-registrar's office, if there is no priest. Accordingly, any two English persons may go to Scotland and be married there by exchanging a verbal declaration of marriage; and if one had resided there 21 days before, they will be held to be married persons, and may immediately return to England, if so disposed. On the other hand, if two Scotch persons go to England, they cannot be married by exchanging mere verbal declarations; they must be married, according to the English law, either by a priest in a church or without one in a superintendent-registrar's office; and if so, they will be held to be married all the world over. Again, the law of England declares that no marriage shall be valid within certain prohibited degrees, and amongst others no man is there allowed to marry his deceased wife's sister. Hence, if a man and his deceased wife's sister go from England to Denmark, where the law allows such persons to marry, and they there are married

according to the form there prevailing, and then return to England, where their domicile is, they will not be treated as married persons, because they went to evade their own law in a matter which is considered of vital importance. It would, however, be different if a man and his deceased wife's sister, who were Danes, and domiciled in Denmark at the time of their marriage, came afterwards to this country; they would in that case be treated as properly married, for their domicile was then Danish, and they had a right to follow their own law.

Another important head of international law is as to the law which regulates the succession to the property of a person deceased. On this subject, the rule is, that it is the law of the country in which a man was domiciled at the time of his death which regulates the succession to his personal property, even though such property is scattered over all parts of the world; hence, it is necessary first to ascertain where the deceased person had his domicile. See DOMICILE. The above rule as to the domicile of a deceased person governing the succession applies only to his personal property; as to his landed or real property, the succession to it is governed by the law of the country where such land is situated. Hence, if an Englishman dies domiciled in England, leaving a Scotch estate, such estate will descend according to the Scotch, and not the English law, and it is well known the rules of succession differ materially in the two countries. See Paterson's *Compendium of English and Scotch Law.* Where the person does not die intestate, but leaves a will, then it is now, by statute, almost immaterial whether his will was made according to English or Scotch law.

Another important head of private international law is as to the court in which a remedy can be obtained on ordinary contracts. The rule is, that wherever a contract was made, the contract must be valid according to the law of the place where it was made, but the remedy may be had anywhere else wherever the defendant can be found. Thus, if a person makes a contract or incurs a debt in Scotland, and afterwards goes to England, he may be sued in the English courts, though the English court will only allow the remedy, provided the contract was valid according to Scotch law. It follows also from this rule that if a debt be incurred in Scotland which would prescribe in three years, yet, if the debtor be in England, he can be sued any time within six years, for that is part of the English remedy. It is often of no small importance to know where and in what country a person may be sued. The general rule is that one must follow his debtor, and sue the debtor in whatever country such debtor resides. In this respect, however, Scotchmen have greater advantages over Englishmen than Englishmen over Scotchmen, for while the rule in England is that a Scotchman can only be sued there in ordinary cases, provided such Scotchman is actually present in England, and can be personally served with process of the court—i.e., with a copy of a writ of summons—in Scotland the rule is that in many cases an Englishman can be sued though he never in his life were in Scotland at all; it is enough if he has some debt due to him there, or has left some trifling article of property—such, for example, as his umbrella—which can be arrested. In the latter case the chattel or debt is first seized by the Scotch creditor, in order to found jurisdiction, or, as it is technically called, *arrestum jurisdictionis fundandæ causa*, and then the Englishman can be sued, and judgment may be obtained against him in his absence, even though he never heard of the action. Englishmen have often complained of this as a barbarous practice of the Scotch courts; nevertheless, the very same practice exists in the city of London, though nowhere else in England. When judgment is once obtained either in England, Scotland, or Ireland, it is now competent for the judgment creditor at once to attach or seize the goods of the debtor in either of the two other countries, if in the mean time the debtor has gone there. The creditor used formerly a fresh action in the new country to which the debtor had removed, and went over precisely the same process again. This circuitous process has been at last effectually remedied by an act of parliament, which allows execution to follow judgment in any of the three kingdoms, except where a Scotch judgment was founded on arrestment only.

INTERNATIONAL LAW (*ante*) is the body of rules, derived from custom or from treaty, by which nations, either tacitly or expressly, agree to be governed in their intercourse with each other. Some of the rules have existed from the beginning of history; their number has gradually increased, their scope widened, and their quality improved. The Amphictyonic council, formed in very early times and limited to Grecian tribes, required that after a battle an exchange of prisoners should be made, and a truce declared in order that the dead might be buried. They also bound themselves not to destroy any city included in the alliance, or to cut it off from running water in war or peace. The Romans in their early days established a college of heralds for declaring war, and allowed only sworn soldiers to take part in it. The influence of Christianity, declaring the universal brotherhood of man as one of its fundamental truths, has been great and beneficent in the sphere of national character and intercourse. Many barbarities fell at once before it, and many others have been gradually mitigated and subdued.

International law has two natural divisions—the one containing rules for the intercourse of nations during peace, and the other regulating the changes made by war.

I. *Rights and duties of nations during peace.*

1. The parties to international law. Individuals cannot be parties; but may, if strang-

ers, claim humane treatment under the law of nature broader than that of nations. Only independent, organized communities are nations, and have the power of making treaties with other nations. Protected or dependent states, provinces and colonies, the members of confederacies, and separate kingdoms made one by a permanent compact, must conduct all their intercourse with other nations through that nation on which they are dependent, or of which they are a part. No particular form of government and no difference of religious belief necessarily excludes a nation from the obligations and advantages of international law. Independent states have equal duties and rights, without reference to their size or other relative differences, and are sovereign in the sense of having no political superior. The individual states of the American union may be said to have a certain local and relative sovereignty; but with respect to other nations the United States only constitute a sovereign state. International law deals only with state *de facto*. While a body, hitherto dependent or forming a part of a nation, is striving to effect its independence, other nations cannot help it, without creating a state of war with the parent state. A state cannot evade its obligations by change of constitution. Denmark and Norway, when separating in 1814, each took its share of the debt of the united kingdom; and the United States assumed the debts of the preceding confederation. The independence of a state implies, first of all, freedom in the conduct of its internal affairs. Generally there can be no legal interference with them by another state. Yet when a state, by external alliances, is increasing its power in a degree that endangers the welfare or tranquillity of its neighbors, the right of interfering in order to preserve the balance of power is claimed and has been exercised; as, for example, in the war of the Spanish succession, and after the French revolution and the fall of Napoleon. On the other hand, when circumstances do not require or warrant such an interference, there have been national declarations designed to forestall and prevent it. An instance of this was furnished by what is called the Monroe doctrine—president Monroe's declaration made in order to prevent European interference in what had been Spanish America—that "the United States would consider any attempt on the part of the allied European powers to extend their system to any portion of our hemisphere as dangerous to our peace and safety." Also when any great cruelty has been practiced by the strong against the weak the right of interference by other nations is claimed. A signal instance was furnished in 1827, during the struggle for independence by the Greeks against the Turks, when the allied fleets of Great Britain, France, and Russia destroyed the Turkish fleet.

2. A state has a sovereign right to its territories and property. Its property consists of public buildings, forts, ships, lands, money, and similar possessions. All private property, also, within its limits is under its protection. Its territory includes all the surface of land or water within its limits; of harbors, gulfs, and straits within certain headlands; and of the sea within a league from the shore. Outside of this limit the sea is free to all nations for commerce and fishing. But while foreigners are free to catch fish in any part of the ocean contiguous to the territory of a state—as on the banks of Newfoundland—they cannot dry their nets or cure their fish on the adjoining coasts unless the privilege have been granted by treaty. A ship owned by inhabitants of a country cannot be regarded as national territory, but is simply private property under the protection of the national flag. In a foreign port it may be attached for debt, and its crew are accountable to the laws of the port and of the country for any misconduct which they may commit. Rivers between two countries, unless a contrary provision is made by treaty, are common to both, and the boundary runs through the principal channel. When a river rises in one state and enters the sea in another, each portion, strictly speaking, is subject to the state within whose limits it is contained. The dwellers on the upper shores have no right, except by concession, to descend to the sea through the lower territory. Yet there seems to be an equitable claim to the privilege almost amounting to a right; and within the present century almost all such navigable rivers in the Christian world have been opened by treaty to the use of those who live on their upper waters. Among these may be mentioned the Rhine, Scheldt, Danube, La Plata and its tributaries, Amazon, and St. Lawrence.

3. Duties which foreigners coming into a country owe to its laws and government. Aliens, sojourning in a country, must submit to its laws unless released from their jurisdiction by special treaty or international custom. They are secure in the enjoyment of their property, the use of the courts, and the transaction of lawful business. They can dispose of their property by will to persons residing abroad, or can transmit it to their own country. They have also the protection of consuls and ambassadors appointed by their own country. Several classes of persons are specially exempt, in a greater or less degree, from the jurisdiction of local laws; as, for example, sovereigns traveling through a foreign country, ambassadors accredited to it, the officers and men of national ships in its ports, and foreign armies when passing through it by permission. In England formerly no one born a subject could lawfully expatriate himself, nor could any foreigner be naturalized except by special act of parliament. But in 1844 provision was made for granting foreigners all the rights of native-born subjects except membership of the privy council or of parliament. In the United States a foreigner may be legally naturalized after five years' residence, and three years after he has formally declared his intention to renounce his former nationality and become a citizen. Persons who have committed

an offense against the laws of their country often flee for refuge into another. If the offense be political only, the nations which are most free themselves generally allow the fugitives to remain; but if they have committed, or are charged with crime, they may be delivered up for trial to their own country when demanded according to the provisions of treaties made for the purpose. An ambassador in very ancient times was considered a sacred person; and, as national intercourse and comity have been enlarged, there has been a proportionate increase in his rights and privileges. His person, dwelling-place, property, family, and attendants, are, in a great degree and as a rule, exempt from the criminal and civil jurisdiction of the country to which he is sent. He has liberty of worship, according to the customs of his country and to his own choice, for himself, his household, and by extension of courtesy, for other persons belonging to his nation. In some countries this liberty has been restricted to worship in his own house. Consuls are agents who have no diplomatic character, but are sent to reside in certain districts to protect the interests, chiefly commercial, of the country which appoints them. Their duties are imposed by their own government, and are performed by permission of the foreign power. They are honored and protected by the flag of their country; but their privileges are, in general, much less than those of ambassadors, except in Mohammedan countries, where, having often been required to perform diplomatic duties, they have acquired corresponding rights. The modern office of consul arose in the commercial times of the middle ages, when companies of merchants, going to reside in the eastern parts of the Mediterranean, had officers, chosen at first by themselves and afterwards by their governments, to settle disputes that arose in conducting business affairs. Treaties are compacts between nations for the regulation of intercourse between both governments and people. They comprise, in a great measure, the history of international law. The power to make them is determined by the constitution of individual states. In the United States they are negotiated under the direction of the president, and are ratified by a two-thirds vote of the senate. When they promise the payment of money it must be appropriated for the purpose by a vote of the house of representatives.

II. *International relations as modified by war.*

1. War is a contention by force of arms between two or more nations. In order to be just it must be necessarily undertaken to repel an injury or to obtain a righteous demand. The power of deciding for what purpose and when it is to be waged must be left to each nation, because there can be no other judge. A nation that has been wronged, or thinks it has, may take no notice of the wrong, or employ only peaceful measures to obtain redress, or accept the offered mediation of a friendly power, or propose arbitration, or use armed force. In general, other nations have no right to interfere. Yet, in some cases, war between two nations may become to other nations a cause for war. Mediation offers a way for escaping war which may be equally honorable and advantageous to both parties. Yet it can only give advice which may be rejected by one or both of the parties. Arbitration, in special cases, may be simple, easy, and effective. The parties agree on the arbitrators, the points to be considered, the time and place, and the law which is to govern the case; and they bind themselves to abide by the decision. The success which has, in numerous instances within the present century, been attained by arbitration, and especially in the recent important case between the United States and Great Britain arising out of the war for the suppression of the southern rebellion, warrants the hope that war may often, in a similar way, be avoided. After the happy settlement in the instance last mentioned, the British house of commons presented an address to the queen, praying that measures might be taken "with a view to further improvement in international law and the establishment of a general and permanent system of international arbitration."

2. War between two nations interrupts all recognized intercourse between the individuals members of each. The relations of commerce, the right given by treaty to reside in either country, and all communication by direct channels between them, come to an end. Sometimes permission is granted to remain still in the country; and generally time is granted to remove with property and effects. The treaty of 1794 between the United States and Great Britain stipulates that "neither the debts due from individuals of the one nation to individuals of the other, nor shares nor moneys which they may have in the public funds or in the public or private banks, shall ever, in any event of war or national difference, be sequestered or confiscated." According to chancellor Kent, "as a general rule, the obligations of treaties are dissipated by hostilities." It is said also by another writer that "Great Britain, in practice, admits of no exception to the rule that all treaties, as such, are brought to an end by a subsequent war between the parties." The peace of Westphalia and the treaty of Utrecht have been renewed several times when the nations concerned in them, after having been at war, were making new treaties of peace.

3. The interests of humanity demand that, during warlike operations on land, noncombatants should be molested as little as possible in the prosecution of their peaceful interests and in the enjoyment of their homes. On the sea, ships and cargoes belonging to enemies have, until recently, been accounted lawful prey; but in the enlarged commercial relations of the world much progress has been made towards exempting innocent traffic on the seas from interruption during war.

4. The forces lawfully employed in war are, on land, regular armies, militia, and

volunteers; and, on the sea, national ships and private vessels commissioned by national authority. But as privateering is necessarily attended with great evils, earnest efforts have been made to restrict or abolish it. In 1856 the parties to the declaration of Paris adopted four rules concerning maritime warfare, one of which declares that "privateering is and remains abolished." Other nations were asked to accept them on condition that they would be bound by them all; and almost all Christian states did agree to them. The United States withheld their assent because, as it is their policy to maintain only a small navy, the right to resort to privateering in case of war offers the only way by which they can cope with the large navies of other nations. They agreed, however, to adopt all the rules, provided the signers of the declaration would consent to exempt from capture all innocent traffic of enemies on the sea. In 1861 the offer was made to two of the principal European powers, by the secretary of state, on the part of the United States, to come under the operation of the four rules; but as it was made for the whole republic—the rebellious as well as the loyal states—it was declined.

5. The rights and duties of neutral nations. In recent times the commercial intercourse among people of different nations has become so general and constant, that they are practically united almost into a confederacy so as to be entitled to a voice in deciding whether war between individual nations shall, in any particular case, be permitted. Sometimes, in view of peculiarities in its position, a territory is made permanently neutral so that armies cannot cross its boundaries nor can it engage in war. Switzerland and part of Savoy, since 1815, and Belgium, since 1830, have been in this condition. Sometimes several powers unite in an armed neutrality in order to maintain certain maritime rights against both belligerents. But such a league is liable to result in war. A neutral state must be impartial in its dealings with both belligerents; must keep itself, its territory and subjects, as detached as possible from the war; and be equally humane to both parties when storm, disaster, or hunger casts them on its shores or within its bounds. By the treaty of Washington, in 1871, Great Britain and the United States adopted three rules to be applied in settling difficulties then existing between them, to be observed by them in future, and to be urged on the acceptance of other nations. These rules are—that "a neutral government is bound, *first*, to use due diligence to prevent the fitting out, arming, or equipping, within its jurisdiction, of any vessel which it has reasonable ground to believe is intended to cruise or to carry on war against a power with which it is at peace; and also to use like diligence to prevent the departure from its jurisdiction of any vessel intended to cruise or carry on war as above, such vessel having been specially adapted, in whole or in part, within such jurisdiction, to warlike use: *second*, not to permit or suffer either belligerent to make use of its ports or waters as the base of naval operations against the other; or for the purpose of the renewal or augmentation of military supplies or arms, or the recruitment of men: *third*, to exercise due diligence in its own ports and waters, and as to all persons within its jurisdiction, to prevent any violation of the foregoing obligations and duties."

6. The liabilities and rights of neutral trade. By the rules set forth in the declaration of Paris, a "neutral flag covers the enemy's goods with the exception of contraband of war," and "neutral goods, with the exception of contraband of war, are not liable to capture under an enemy's flag." The term "contraband of war" is used to denote articles which directly aid warlike operations. According to a formula adopted by the United States, the list includes all kinds of guns, fire-arms, ammunition, weapons, armor, military clothing, equipments for men and cavalry horses, and all instruments, of any material, manufactured and prepared for making war by sea or land. The right of blockade in time of war is universally admitted, but in general is available only for harbors, mouths of rivers, and limited districts of coast. As a blockade begins and ends at definite times, previous notification, of both its beginning and ending, must be given to traders and neutral governments. To be legal, it must be maintained by armed force sufficient to show that it is actual, and to prevent all ordinary and open attempts to pass it. All merely formal, or, as they have been called, paper blockades, like Napoleon's Berlin and Milan decrees and the two counter British orders in council in 1807, are regarded by international law as futile and void. When a vessel is captured and found guilty of attempting to enter or leave a blockaded port, the penalty it incurs is the confiscation of itself and its cargo. In carrying out the international rules adopted concerning contraband goods, enemies' goods on enemies' ships, and blockades, search is often necessary to determine the nationality of the vessel and the nature of its cargo. It must be submitted to by the vessel, but must not be so conducted as to give unnecessary annoyance. The right of search is a war right applicable to merchant vessels only in time of war, and to those suspected of piracy at any time, inasmuch as piracy involving attack on the peaceful and unarmed, is held to be war against the human race.

INTERNATIONAL WORKINGMEN'S ASSOCIATION, commonly known as the International, organized in 1864 at London by an assemblage of workingmen from the principal countries of Europe, is an association of trades-unions designed to protect the working-classes against the power of capitalists, and seeking to overthrow the system of paying labor with wages by substituting for it national co-operative associations. The programme and rules for its government drawn up by Dr. Karl Marx were finally adopted, in preference to those of Mazzini and Bakunin, at the first general congress,

held at Geneva, Sept., 1866. The reasons assigned for forming the association were: 1. That the emancipation of labor must be accomplished by workingmen themselves. 2. That the struggle to effect it is a struggle, not for class privileges and monopolies, but for equal rights and duties with an abrogation of class rule. 3. That the economical subjection of laborers to capitalists—who monopolize the means of labor—that is, the sources of life—lies at the foundation of servitude in all its forms, of all social unhappiness, mental inferiority and political bondage. 4. That the economical deliverance of the working classes is, therefore, the first great end which political movements ought to seek. 5. That efforts in this direction have, thus far, been unsuccessful because of the want of union among the departments of labor in each country, and among the working classes of different countries. 6. That the emancipation sought for is not a merely local or even national problem; but one which, embracing all countries where modern society exists, requires especially the co-operation of the most advanced nations. 7. That the present revival of effort among the working-classes in the principal countries of Europe, while it may animate their hope, should also warn them against a repetition of their old errors, and calls on them to consolidate immediately the various disconnected movements among themselves. Three subsequent meetings of the general congress were regularly held; but the fifth meeting, which was to have been at Paris in 1870, was prevented by the war between France and Prussia, and since that time no meeting has been held. The influence of the association has been extensive and effective. The strikes of the bronze workers in Paris, 1867, and of the builders in Geneva, 1868, were sustained and made successful by English money; and in England the power of trades-unions and of strikes was greatly increased, through the power which the association exerted in preventing the master-workmen from obtaining supplies of laborers in other lands. The movement encountered a very severe check during the Franco-Prussian war. Many of the Paris communists belonged to the association, and it defended their excesses in a pamphlet written by Marx and published by the general council at London. But while its operation is at present less public—even its visible organization having been broken up or suspended—its importance is maintained by an increased efficiency among the national unions, and by the establishment in all the principal countries, of organs for diffusing its ideas. See MARX, KARL.

It is a curiously interesting fact that we owe the International to an occasion on which it would be least of all expected that such an institution would arise. That occasion was the international exhibition held in London in 1862, operating through the visit paid by French workmen, on the invitation of their English brothers. In accordance with this invitation, delegates were sent from the different French trades-unions, and these men inspected carefully the exhibits and processes displayed at Kensington, and duly reported their opinions and impressions to the labor organizations which they represented. But besides this semi-official duty, they assumed another, which appears to have been thrust upon them—perhaps innocently enough—from both sides of the channel, that of investigating the relations of English laborers to their employers, and of comparing notes as to the relative conditions of labor in the two countries. On Aug. 5, 1862, at a tavern in London, a meeting of the delegates and of English workingmen was held, which may be considered to have been the first step towards international labor organization. At this meeting an address was read by the English workingmen, which, while harmless enough in its sense and in its wording, contained the secret cause of all labor struggles, since it recited the reasons for dissatisfaction on the part of the laboring class, while it recommended international association as a remedy. The existing objectionable conditions of labor were stated to be competition, disputes as to wages, and the increasing introduction of machinery. The French delegates were not only cordially received and liberally treated by their English comrades, but, moreover, inducements were held out to certain of them to remain in England for the purpose of conference and study as to the most advantageous plan on which to organize vast strikes which should be sustained by the full power of international associated effort. In 1863, by taking advantage of a manifestation in favor of Poland, a pretext was found for a reunion, at which the organization was still further advanced. And now it needed only certain changes in the French laws to make the new society permanent and powerful. This was effected by a fortunate bill which passed the French *corps législatif* in 1864, by which coalitions were authorized in France.

On Sept. 28, 1864, at the grand international meeting at St. Martin's hall, in London, the provisional regulations of the "international association" were adopted, and these were ratified two years later, in the first congress of the Internationals, held at Geneva. Progress now became rapid in the new organization. A bureau for the receipt of subscriptions was opened in Paris, and met with general patronage on the part of the workingmen. Subordinate societies, or "groups," were formed in Germany, Switzerland, Italy, Denmark, and Belgium. Journals were established, and widely circulated, advocating the views of the international, which already began to oppose its conclusions to those of the cabinets and courts of Europe. The outbreak of the Franco-German war presented an opportunity which was not neglected. The formation of battalions of the national guard in Paris was aided by the Internationals to the extent of infusing as much of their own element into them as was practicable, with the design of corrupting that body, and employing it in the great social revolution which it was designed to precipi-

tate. The second congress took place at Lausanne, Sept. 2, 1867; the third at Brussels, Sept. 6, 1868; the fourth at Basle, Sept. 6, 1869, and at this gathering, attended by 80 delegates, a Mr. Cameron, sent by the national labor union of the United States, claimed to represent 800,000 workingmen in the new world. In the following year, 1870, much uneasiness had begun to be felt in Europe in regard to the growing power of the International, and suits were instituted against it in France. Yet a fifth congress was to have been held in Paris in that year, but was prevented by the outbreak of the war. Incidentally, it should be noted that one of the delegates to the congress of Basle was Bakunin, a professed Russian nihilist. Twenty-nine journals advocated the principles of the International in Europe. Seven of these were published in Switzerland and Belgium, one in Italy, six in Spain, and the remainder in Germany and Holland, none being issued on French territory: one, printed in German, emanated from New York. It is believed that efforts were made on the part of the French empire to unite with the Internationals as against the *bourgeoisie*. Certain it is that Mazzini, Garibaldi, Blanqui, and Ledru-Rollin distrusted the new organization. But in the end the empire and the International were found opposed to each other, and though the government decided finally not to attack the International as a secret society, it instituted proceedings against fifteen members of the committee of the Paris bureau, on the charge of having belonged to an unauthorized society, and these were tried early in 1868, but on being condemned, were simply fined 100 francs each. The tribunal in this case declared the association dissolved, in its bureau in Paris; yet a few months later others of its committeemen were tried, condemned, and this time imprisoned for three months, in addition to being fined. The result of these trials was dissimulation on the part of the Internationals—and the institution still lived. In 1869 there came to the surface, in connection with the International, gen. Cluseret, who had been naturalized as an American citizen, and who now undertook to found in this country a journal in the interest of the order: this intention he afterwards abandoned, but claimed to have organized relations between the French and American groups. Documents discovered in the possession of members of the International tended to show the existence of a plot to promote a social revolution in Paris in the interest of the *ouvriers*, and this was, in fact, the inception of the *commune*. The names of certain of these members, who were afterwards tried on account of their membership, and escaped with light fines, appeared later among the list of the members of the *commune*, who, for two months and a half, led the concerted movement of pillage, murder, and incendiarism in the city of Paris. At the present writing there exists no evidence to show that the International has been entirely abandoned. See SOCIALISM.

*INTEROCEANIC SHIP CANAL. One of the greatest schemes to facilitate the commerce of the world is the project for the construction of a ship canal across the isthmus joining North and South America—a scheme which has been contemplated since an early period in the history of America. In the search for a shorter route to India, Columbus discovered land which he thought part of Asia, but the explorations of Balboa disproved this and re-presented the old problem. The isthmus was an obstacle which enterprising men thought to remove by cutting a canal. In 1528 Galvao, a Spaniard, proposed to Charles V. an artificial water-way, and the latter, in 1534, directed Cortez to locate a route, and surveys were subsequently made. Gomara suggested three routes in 1551, one via Nicaragua; and another Spaniard explored the isthmus in 1567 under the patronage of Philip II. In 1695 William Paterson projected with royal favor an expedition to colonize Darien and cut a canal across the isthmus, but the enterprise failed. A number of explorations and plans were made after this by men of different nationalities, and, in 1804, Humboldt published a discussion of the various canal routes which aroused new interest; and, as commerce increased, the importance of the problem became still more evident, and many projectors arose in the chief maritime nations.

In 1825 the Central American republic sought the co-operation of the United States in the construction of a canal via Nicaragua, and a contract was made, but the necessary capital was not subscribed. The scheme was resuscitated in 1831. Many persons have recently cited the Monroe doctrine as a reason why the canal should not be built by foreign capitalists, an objection which, in the light of the enactments of both houses of congress in 1835 and '39, constitutes a grave misapplication of the spirit of that doctrine. The more cosmopolitan views, together with liberal legislation and the Clayton-Bulwer treaty with Great Britain in 1850, favor, first, the construction of the canal by any individuals or companies willing to undertake it; secondly, the contemplation of the work as international in character; thirdly, the formation of treaties with other nations which would guarantee the perpetual neutrality of the canal. Since 1864 every part of the isthmus which appeared feasible as the route of a canal with or without locks has been explored by Americans at public or private expense, while in a number of cases all the requisite data have been collected for the estimation of length, excavations in earth and rock, tunneling, location of locks and dams, and the improvement of harbors. After a number of explorations of the isthmus by French engineers, M. Ferdinand de Lesseps, the projector of the Suez Canal, and M. Henry Bioune sent invitations to chambers of commerce and scientific societies, requesting them to send representatives to a congress to be held in Paris to discuss the various projects for piercing the

isthmus, which had been elaborated by American and French engineers. It was hoped that by these means the best route might be decided upon, and that then capital would be invested and the work vigorously prosecuted. One hundred and thirty-five engineers, statisticians, and scientists met at Paris, May 15, 1879, and formed the congress, of which M. de Lesseps was chosen president.

A short sketch will first be given of the work of the congress and the projects presented, after which a few observations will be made upon the results. Five committees were appointed:—I. The committee upon statistics, to consider the probable traffic of the canal, the tonnage, etc. In the opinion of these gentlemen a canal without locks would be profitable, while a canal with locks would not. At $3 per ton, a minimum annual traffic of 6,000,000 tons would be necessary—equivalent to 8 ships of 2,050 tons daily—to pay ordinary dividends. They stated the probable maximum limit of the actual traffic to be 24 ships in one day, but thought a capacity of 50 ships per day desirable; 4,830,000 tons would naturally have passed through the canal in 1876, had it been built. It was calculated that the canal could be finished in 1887, and that the tonnage would aggregate 7,250,000 tons the first year. II. The committee upon economical and commercial questions considered the saving to each country in cost of transportation, the new markets which would be opened, and similar questions. The distance by water from European ports to all the ports of the Pacific ocean, from the cities on the Atlantic coasts to the cities on the Pacific coasts of America and to the vast countries on the coasts of Asia, eastern Africa, and the islands of the Pacific, would be extraordinarily shortened. It would no longer be necessary for the guano and niter of South America and the wheat of California to delay in the calms of the equinox, or to brave the storms of Cape Horn. The great vegetable and mineral resources of the Pacific South American states and of Central America would naturally be greatly developed. The larger part of the tonnage would be that of ships of the United States. III. The committee upon navigation discussed the effect of the canal upon naval architecture, the effect of currents of wind and water upon traffic and the canal, and cognate topics. They recommended that the canal should have a minimum depth of 27.2 ft., a breadth at the bottom of 82 ft., at the top of 229.6 ft., and in rock excavations a breadth at the surface of 98.4 feet. Locks should be 72.2 ft. wide and 492 ft. long, and so distributed that 50 vessels per day could pass. IV. The committee upon technical questions examined different routes, estimates of cost of building, working, maintenance, and repairs; they also considered the safety and speed of navigation in the harbors and canal. They recommended the adoption of the tide-water route without locks, extending from the gulf of Simon to the bay of Panama; this is commonly called the Panama route. V. The committee upon ways and means calculated the cost at $120,000,000, the gross annual revenue at $18,000,000, and the total capital required at $150,000,000. The cost of maintenance was estimated at $1,200,000 per annum, and a royalty of 5 per cent of the gross earnings would be due the United States of Colombia. All were in favor of the strict neutrality of the canal. At the close of the session a vote was taken upon the report of the technical committee, which was accepted with the following vote: yeas, 75; nays, 8; abstained from voting, 16; absent, 36; total, 135. Eight projects were presented to the technical committee, of which a short description is given. The width of the isthmus in the vicinity of Panama, which is the narrowest part, is 34.17 m. when measured in a straight line. The Panama railroad crosses the Cordilleras through the pass at Culebra, which is 285.4 ft. above the sea-level.

Routes via Panama.—(1.) In the opinion of Lull and Menocal, who surveyed this route in 1875, a sea-level canal would not prove profitable; but they made a project for a lock-canal. Starting from the bay of Colon, the route crosses the Chagres river at Matachin through a high aqueduct, and reaches the summit level at an elevation of 124.6 ft. above the sea. A dam extending between the rocky shores of the Chagres river would supply the canal with nearly 35,000,000 cubic ft. of water per day through a subterranean duct 13,120 ft. long. The canal crosses the Cordilleras through Culebra pass, enters the valley of the Rio Grande river, deflects to the right, and enters the harbor of Panama e. of the terminus of the Panama railroad. A new channel would be made for the Rio Grande river, and a canal to drain its eastern affluents. Thirty-eight curves, some having as short a radius as 2,493 ft., and 25 locks, would be necessary. The total excavation is estimated at 48,397,000 cubic yds., and the cost at $96,000,000. The length would be 45.45 m., and the time of passage 2.5 days. Menocal considers the Nicaragua route more desirable than this. (2.) Messrs. Wyse and Reclus, accompanied by explorers and engineers, located a route for a sea-level canal, which follows substantially the line of the Panama railroad. It was after M. de Lesseps had been convinced of the feasibility of a tide-level canal at this point that the invitations were sent out which resulted in the Paris congress. Beginning at the town of Colon, or Aspinwall, on the bay of Limon, the canal crosses the marsh of Mindi, curves twice, and reaches the Chagres river, which it intersects several times and follows to Matachin. It then enters the valley of the Obispo, pierces the mountain through a tunnel 25,263 ft. long, occupies the Rio Grande valley, and terminates in the gulf of Panama. The length of this route is 46.6 m., and there are 13 curves. It uses the river beds the whole distance, and would drain the valleys. A lateral canal would be built at Matachin, on account of a fall of 49.2 ft., to conduct the water of the Chagres into the canal; a

number of such cuttings are necessitated by the rapids and the heavy rain-falls, which produce destructive floods. The depth of the canal at the eastern extremity is 27.9 ft. below mean tide, and at the western 23.9 ft. below the lowest neap tide. The canal is 65.6 feet wide at the bottom, expanding near the ends to 328 feet. A cross section of the tunnel is 78.7 ft. wide at mean tide, is shaped above the water like a Gothic arch, and ends in a circular arch the highest point of which is 111.5 ft. above the water. To allow vessels to pass each other, the canal will be widened at intervals of about 5.6 miles. No rise of water exceeding 19⅝ ft. is anticipated. Sudden inundations would be prevented by dams in the upper Chagres valley, forming natural reservoirs from which the flow of water could be regulated to a considerable extent. A sea-wall 2,788 ft. long would render the bay of Limon serviceable, while a channel at the western end would be protected by walls, the material for which would be obtained by the rock-cuttings. The earth near the ends can be removed by dredging. It was calculated that it would be necessary to excavate 36,625,000 cubic yards of rock and 25,296,000 cubic yards of earth. Wyse and Reclus estimate the cost at $95,000,000. (3.) A project for a lock-canal, presented by the same engineers, contemplated the construction of dams in the Chagres and Rio Grande rivers, forming two lakes, connected by a cutting, whose maximum depth would be 236.2 feet. This would form a plane 78.7 ft. above tide-water, 25.48 m. long, 13.66 m. from Colon, and 7.45 m. from Panama, to each of which ports the descent would be made through five locks. The calculated cost is $85,600,000; the total excavation, 15,696,000 cubic yds.; the length, 45.36 m.; and the time of passage, 2 days.

Routes via Nicaragua.—Two projects were presented. (4.) The first was elaborated by Messrs. Lull and Menocal, and based upon surveys made in 1872–73 at the expense of the U. S. government. This plan was favored by the American representatives and by a number of French engineers, and is the route most popular among the American people. The eastern extremity is at the harbor of Greytown, and the western at the harbor of Brito. Starting from Greytown, the canal is constructed, partly by excavation and partly by dikes, on the left bank of the San Juan river to the mouth of the San Carlos, a distance of 43.5 miles. Here a dam is thrown across the San Juan, which flows through a rocky valley, producing slack-water navigation 63.38 m. to the lake of Nicaragua. This lake, situated 107 ft. above the sea-level, having a length of 109.35 m. and a breadth of 34.78 m., forms a large natural reservoir. From 50 to 60 m. of the route will be across the lake; some dredging, however, will be necessary. The western section starts from the lake near the mouth of the Rio del Medio, enters the Rio Grande river 4.97 m. from the lake, where it receives the waters of the Rio del Medio, and crosses the Rivas pass. At this point a stream called the Chicolata becomes an affluent, and finally the canal enters the valley of the Rio Grande river, and terminates near its mouth. The total length is 180 m., of which but 62 m. are artificial. A bar of sand would be removed from the mouth of the harbor at Greytown, and the deposition of silt prevented by turning the San Juan river into the Colorado. At the harbor of Brito a breakwater would be built, and a jetty to keep out the silt from the Rio Grande river. Ten locks will be required each side of the lake. The western section passes through volcanic mountains, but no great difficulty in construction is anticipated. Blasting will be necessary to form a channel at the entrance of the canal to the lake and in the Rivas pass. The dimensions proposed are: depth, 26¼ ft.; breadth at bottom, 71.2 ft; breadth at water-level, 150.9 ft.; and, in rock, 59.7 ft. at the bottom, and 89.9 ft. at the water-level. The total material excavated by blasting, dredging, and digging amounts to 62,700,000 cubic yds., and the total cost is calculated to be $52,577,718, or, adding 25 per cent to cover errors and contingencies, $65,722,147. Time required for transit, 4½ days. (5.) The second project, that of M. Blanchet, is quite different from the American. The chief feature is to preserve the level of the lake throughout the major part of the San Juan river by the construction of a dam. To build the western section, he proposed to cut Guyscoyal pass, and convert the valley of the Rio Grande river into a lake by a dam at La Flor 1312 ft. long, and supporting 65.6 ft. of water. The descent to the harbor of Brito would be made by locks. The chain of two artificial lakes and one natural would have a length of 147.26 m., while the total length of the canal would be 182.4 miles. This route requires the excavation of 36,240,000 cubic yds. of earth and rock, the cost is calculated at $72,400,000, the time at 4½ days, and 14 locks must be built.

(6) *The Tehuantepec route,* submitted by M. de Garay, is located in Mexican territory, and connects the bay of Vera Cruz with the gulf of Tehuantepec. The land is level and low, except a narrow ridge of the Cordilleras on the Pacific coast. The water from a number of large streams would be utilized. The dimensions proposed would not admit of the passage of the largest ships. The length would be 174 m.; the time of passage, 12 days. One hundred and twenty locks would be necessary. (7) *The Atrato-Napipi route,* surveyed by Selfridge and Collins, starts from the gulf of Darien and passes up the Atrato river at its level to the mouth of the Napipi, a distance of 149 miles. The minimum depth of the river is 25.6 feet. From this point the air-line distance to the bay of Chiri-Chiri is 27.95 miles. Dredging would be done for 5.6 m. in the Napipi river, under which the canal afterwards passes by means of a tunnel; it terminates in a basin 18.7 ft. above mean tide after passing through 5.6 m. of tunnel in the mountains near the Pacific. Two locks connect the basin with the bay of Chiri-

Chiri, and jetties must be built and bars cut through in the harbors. The cost is estimated at $98,200,000, the time of passage at three days, and the total length at 180 miles. (8) *The San Blas route* was explored by McDougal in 1864, at the expense of Mr. Kelley, of Philadelphia, and was afterwards surveyed by Selfridge. At this point, the narrowest part of the isthmus, the width is but 31 miles. A tide-level canal is impracticable, owing to the height of the Cordilleras and the location of the streams. Upon the authority of Wyse and Reclus, the length of the canal would be 32.9 m., and about 10 out of the 24.85 m. of excavation would be tunneling. An excavation of 44,473,000 cubic yds. would be required, at a cost of $95,000,000, while the passage would take one day, and there would be one sea-lock. In addition to the plans outlined above, which were the more important ones presented to the congress, a number of modifications of them, as well as independent routes, have been proposed. In a paper read before the society of arts, London, capt. Bedford Pim, R.N., M.P.—a gentleman who has passed through Nicaragua six times, and surveyed the major part of both coast-lines of the isthmus—pronounces the improvement of the harbor at Greytown the most difficult part of the work on the Nicaragua route. The entrance to the harbor is alternately choked up with sand by a storm, and opened by a flood in the San Juan river. To avoid this harbor, which he thinks would "completely swamp the enterprise," he proposes a route starting from Pim's bay, 40 m. n. of Greytown, and ending at the port of Realejo, on the Pacific. This route would be 290 m. long, and would include 85 m. of navigation on the lake of Nicaragua and 40 m. on lake Managua. The chief feature of the plan is the proposal to make the depth of the canal only 8 ft., and to transport the vessels upon "pontoons by the process which has been successfully used in the Victoria docks (London) for years." He suggests that a railroad should first be built connecting with steamboats on the lakes as an auxiliary to the construction, and as liable to afford a valuable knowledge of the district. The captain estimates the cost at an average of about $100,000 per mile, or a total of $30,000,000, and proposes that the governments of England, France, and the United States should each guarantee one per cent upon the capital, and that a five-acre plot of land should be given with each $50 share.

Speaking of the *personnel* of the congress, a gentleman well known in Paris wrote: "Let it be remembered that one-half of the congress were French; they had been chosen by the organizers of that assembly; 34 members belonged to the geographical or the commercial geographical society of Paris. What was their competency to decide between a canal with locks or on a sea-level? Fourteen other members were engineers or assistants of some sort on the Suez canal. What was their impartiality between M. de Lesseps and others? And, among the others, if one takes account of personal friendships and of the prestige exercised by a great name, how many more will remain?" Capt. Pim says, "The selection of a route for the proposed canal seems to have been a foregone conclusion." The parties most interested in the canal are the American states and England. England sent no official representative, but gave sir John Stokes permission to attend. The United States looked upon the congress as a meeting of capable specialists convened to discuss a matter of paramount importance, and, with this in view, appointed rear-admiral Daniel Ammen and Anecito G. Menocal, civil engineer in the U. S. navy, commissioners to represent the government officially, and placed at their disposal all relevant reports and papers which had been prepared by government officers. They had "no official powers or diplomatic functions," and no authority to state what action would be taken by their government. Commissioner Ammen abstained from voting, upon the ground that "only able engineers can form an opinion after careful study of what is actually possible, and what is relatively economical in the construction of a ship canal." At present, whatever may be the opinion of the advocates of other schemes, there appear to be two strong parties: first, those favoring a tide-level canal viâ Panama; and, second, those favoring the lock canal viâ Nicaragua, projected by Lull and Menocal. M. de Lesseps says an hour and a half were required for a steamship to pass through a loek which was a "vast improvement" upon older ones; therefore locks would limit the traffic of the the Nicaragua canal, and render it unprofitable. Rear-admiral Ammen states that a lock 515 ft. long, 60 ft. wide, and having a lift of 18 ft., is being built at St. Mary's, Mich., through which, it is computed, a steamer will pass in 11 minutes. M. de Lesseps thinks earthquakes would injure the locks. Admiral Ammen thinks, upon the evidence of ruined archways, that the result would not be serious, while the locks would be so constructed as to allow repairs to be made in the minimum time, and, save in four instances, without drawing the water from the canal. Eminent scientists and engineers have made objections to the Panama route, some of which they consider serious and irremediable. Commodore M. F. Maury, LL.D., author of a work upon physical geography, and Maury's *Sailing Directions*, says: "If nature, by one of her convulsions, should rend the continent of America in twain, and make a channel across the isthmus of Panama or Darien as deep and as wide and as free as the straits of Dover, it would never become a commercial thoroughfare for sailing-vessels." He also states that vessels going to or from Panama have been detained by calms for months at a time. This same great belt of calms covers all of the isthmus s. of Panama, while its effect at the mouth of the Atrato is still more vexatious! The fact that the Panama railroad has not diverted sailing-vessels from their old route around cape Horn, confirms the above. Only one-third of the foreign commerce

of England is carried on in steamships, and their increase is less rapid than that of sailing-vessels, so that a large part of the shipping of the world would be excluded. The heavy rainfall of the Chagres valley culminated in a flood in Nov., 1879, which damaged the Panama railroad to such an extent as to cause the suspension of traffic for two or three months. Such a flood would probably have done much injury to the canal had it existed. Panama affords no materials for construction, inferior facilities for obtaining supplies and labor, has a dry season of but two or three months, and is one of the unhealthiest regions in the world. On the other hand, Nicaragua contains good building material, ample supplies, a population from which many laborers could be recruited, and it has a dry season of five or six months. It is far more healthy, especially west of the lake. The Panama route would cost $94,511,360; the Nicaragua, $65,722,137; the former would draw little or no support from the region through which it passes, while the latter would develop a country rich in the productions of the three kingdoms of nature. The concession for the Panama route granted by the United States of Colombia is controlled by M. de Lesseps, who organized a company and opened books in Europe and America to receive subscriptions. Some steps have been taken in America to organize the Nicaragua canal company, the presidency of which was offered to gen. U. S. Grant by admiral Ammen. Mr. Joseph Nimmo, chief of the bureau of statistics, thinks the present commerce insufficient to support the canal. Whether this be true or not, the question is one not of desirability nor of feasibility, but one of the time when to build, and of its safety as a financial investment. See *Supp.*, page 882.

INTEROCEANIC SHIP RAILWAY. Capt. James B. Eads, the projector of a railway across the American isthmus for transporting ships, presented the essential features of his plan to the canal committee of the house of representatives in March, 1880. Of its kind, the scheme is in many respects more ambitious than any heretofore proposed. The engineering and financial success achieved by capt. Eads in the construction of the St. Louis bridge, and the jetties at the mouth of the Mississippi river, demands a careful consideration of projects which he may advocate. The proposed railway is to consist of twelve tracks, placed 4 or 5 ft. apart, upon which the ship carriage, or cradle, runs. At each terminus an inland basin is excavated, perpendicular to the shore line of the harbor, and 3,000 ft. long. Gates placed at the outer end of the basin, which is lined with masonry, make it possible to pump out the water when repairs are necessary. The track in the basin is 30 ft. below water-level at the harbor end, and, rising 1 ft. in 100, intersects the surface level at the other extremity. The dimensions of cradles will be adapted to the size of vessel transported. The largest merchant ships weigh, when loaded, about 6,000 tons. This weight will be distributed over 1200 wheels, making the pressure 5 tons upon a single wheel which could support 20—a pressure ordinarily exceeded in practice, as the driving-wheels of many locomotives must sustain $6\frac{1}{2}$ tons.

A ship to be transported enters the harbor end of the basin, and is floated to where her keel is over the keel-block of the cradle, then the supports are adjusted under the bilges substantially as in a dry dock. The weight rests chiefly upon the keel, while a part is distributed over the bilge blocks, which also keep the ship in an upright position. A stationary engine hauls the cradle and ship out of the water, and then two very powerful locomotives are attached, which draw their great load to the other terminus, at a speed of ten or twelve miles an hour. The locomotives are to have five times the size and power of freight engines, and with their tenders will use all twelve tracks. The wheels have double flanges, and as their number is great, the rails and road-bed sustain but a moderate pressure, and the failure of one or several wheels would not be serious. Derailment is impossible, and the displacement or breakage of rails would cause no delay, as six of them would bear the entire weight. Above each wheel are two strong steel springs, which diminish the strain, and each wheel can be removed separately by loosening two bolts. Cars would pass each other by means of transfer tables, which would move the cradles sideways. One of the chief arguments against this plan is that loaded ships will not endure the strains imposed upon them when out of water, and supported only at intervals. The assumption that the mobility of water equalizes the strain is not correct, as it is common in rough weather for the whole weight of a ship and cargo to bear upon the ends or the middle, leaving the remainder of the ship unsupported; indeed, a gale subjects a ship to very severe torsional and lateral strains, which change constantly in direction and intensity—strains far exceeding any which would be incurred on the railway. Farther evidence upon this point is furnished by the portage railroad of the Alleghany mountains, which, forty years ago, connected the canal systems of eastern and western Pennsylvania. Over this railroad loaded canal-boats—frail craft compared with sea-going vessels—were hauled for a distance of over 30 m. up and down steep inclines. Many experienced ship-builders consider ship transportation by rail feasible, and, compared with ship canals, economical. Thus it will be seen that this project involves only the combination upon a large scale of a number of well-tried engineering expedients.

Routes could probably be located at Panama, Nicaragua, and Tehuantepec, with a grade of 30 or 40 ft. to the mile. Capt. Eads estimates the cost of a road and harbor at Panama at $50,000,000, and the route is, perhaps, the shortest that could be found, but

expensive harbor improvements would be required. The Chiriqui route has steeper grades, but superior natural harbors. The Panama route would probably exclude the transportation of vessels without steam-power. See INTEROCEANIC SHIP CANAL. Mr. Eads believes "that upon any route where it is possible to build a canal, it is equally possible to build and equip a substantial and durable ship railway;" that a railway is practicable where a canal is not; that the elements of cost, time of construction, speed in transit, capacity, and cost of maintenance and operating, are all heavily in favor of the railway; that the capacity of the railway could be increased at any time to transport more or larger ships with no interruption of traffic; that more accurate estimates can be made of the cost of a railway and the time of completion than of a canal, as the latter requires sub-aqueous work, where the conditions are more variable, and that, therefore, capitalists will have more confidence in the railway. It is estimated that the railway could be duplicated once in ten years for the interest on the difference between the cost of a canal and a railway of equal capacity. A traffic of 5,000,000 tons yearly, at $2 per ton, would give an income of $10,000,000, which, deducting 50 per cent for expenses, would leave a dividend of 10 per cent upon the capital.

INTERPLEAD'ER SUIT was till recently brought only in the court of chancery to determine which of several parties claiming the same thing is entitled. Formerly, there was no analogous process in courts of common law whereby several parties claiming one thing could be brought into the field, but in 1831 a statute gave power to do this to a limited extent. By the judicature act of 1875, the interpleader acts are applicable to all actions in the high court. See MULTIPLEPOINDING.

INTERPOLA'TION, the insertion of a word, line, verse, sentence, part of a sentence, or whole passage, generally with a view to secure respect for some opinion by the apparent support of antiquity, or of those whose authority is greatest. Many instances of interpolation are well known, and others are with great probability suspected, in which the works of early Christian writers have been tampered with, to make them yield support to novel doctrines and practices.—In mathematics, interpolation is the insertion between two members of a series increasing according to a certain law, of other members such as, if not absolutely, yet very nearly, may accord with the same law.

INTERPRETATION, in law, is the judicial exposition of the meaning of constitutions, treaties, statutes, contracts, wills, and other papers, or parts of the same, that affect the rights of parties to any action in a court of justice. It often happens that a suit is determined by the interpretation of written words or phrases of doubtful meaning, so that courts in exercising their powers in this respect incur a very high responsibility, which is all the greater from the impossibility of reducing interpretation to an exact science under rigid rules. It is necessary that courts should not only have a clear understanding of the general meaning of words and of their application to the matters in hand, but also that they should be able impartially to weigh the whole environment of the cases upon which they are to pass an authoritative judgment, and at the same time cherish an earnest purpose to do exact justice to the parties. Their duty sometimes involves the necessity for very nice, not to say ingenious, discriminations, which tax alike their judgment and conscience. In regard to many things their task has been made easy by well-settled rules and a long line of precedents; but new questions often arise, upon which precedents are to be made rather than followed. It sometimes happens, from a lack of skill in composition, that a single passage, taken by itself, is partially or wholly incompatible with the manifest spirit and intent of a legal document. In such cases courts will exercise a large discretion, in order, if reasonably possible, to make the instrument consistent in itself. Every written paper necessarily assumes the existence of facts or incidents that are either not expressed at all, or expressed only by implication, and that must be considered before the exact meaning can be determined. An incompetent or unscrupulous judge might do a great wrong by a too close adherence to a particular part of an instrument while failing to give due weight to its spirit and purpose as a whole. Particular words and phrases must be considered in their relations to the context and to the subject matter, not torn from their connection and interpreted by themselves in such a way as to defeat the manifest intent of the instrument. Oral evidence cannot vary the terms of a written document, which must be considered as a whole. Courts are not at liberty to supply by interpretation the unexpressed intent of a legislature, testator, or contractor. The interpretation must be made in good faith and be in accord with good sense and the common understanding of language, not forced or strained to support a theory fatal to the document itself. Inadvertent errors or omissions will be overlooked, and mistakes in orthography and grammar will be lightly regarded where the meaning is clear. It is a general rule that the words of a statute are to be taken in their ordinary sense; but if the statute relates to a particular subject or class of persons, and requires the use of terms not generally familiar, their meaning will be determined by the prevailing usage in regard to the subject. The will of a legislature cannot be judicially conjectured. Penal statutes, in deference to the recognized rights of accused persons, are construed with great strictness; courts will not enlarge their scope by strained interpretations even to punish persons of whose guilt they have no moral doubt.

INTERSTATE TRAFFIC ON RAILROADS. See page 882.

INTERVAL, in music, is the difference of pitch between sounds in respect to height or depth, or the distance on the stave from one note to another, in opposition to the unison, which is two sounds exactly of the same pitch. From the nature of our system of musical notation, which is on five lines and the four intervening spaces, and from the notes of the scale being named by the first seven letters of the alphabet, with repetitions in every octave, it follows that there can only be six different intervals in the natural diatonic scale until the octave of the unison be attained. To reckon from C upwards, we find the following intervals; thus C to D is a second; C to E is a third; C to F is a fourth; C to G, a fifth; C to A, a sixth; C to B, a seventh; and from C to C is the octave, or the beginning of a similar series. Intervals above the octave are therefore merely a repetition of those an octave lower; thus from C to D above the octave, although sometimes necessarily call a ninth, is neither more nor less than the same interval which, at an octave lower, is termed the second. A flat or a sharp placed before either of the notes of an interval does not alter the name of the interval, although it affects its quality; for example, from C to G♯ is still a fifth, notwithstanding that the G is raised a semitone by the sharp. Intervals are classified as perfect, major, and minor. Perfect intervals are those which admit of no change whatever without destroying their consonance; these are the fourth, fifth, and the octave. Intervals which admit of being raised or lowered a semitone, and are still consonant, are distinguished by the term *major* or *minor*, according as the distance between the notes of the interval is large or small. Such intervals are the third and sixth; for example, from C to E is a major third, the consonance being in the proportion of 5 to 4; when the E is lowered a semitone by a flat, the interval is still consonant, but in the proportion of 6 to 5, and is called a minor third. The same description applies to the interval of the sixth from C to A, and from C to A♭. The second and seventh, though reckoned as dissonances, are also distinguished as major and minor. The terms "extreme sharp" and "diminished" are applied to intervals when they are still further elevated or depressed by a sharp or a flat. For the mathematical proportions of intervals, see HARMONICS.

INTES'TACY, the state of a person who has died without leaving a will. Every person in the United Kingdom has the right, as one of the incidents of ownership, of regulating the succession of his property after his death; that is, of executing a will which must comply with certain requisites, so as to show that it was solemnly and deliberately made, by which will the owner can give his property to whomsoever he pleases. The forms in Scotland differ from those in England and Ireland, and there is some restriction on the right of testing or bequeathing property, but in all places the principle is, that if no will, or deed equivalent to a will, is executed, or, if a will executed is invalid from defect of form, then an intestacy occurs, and the law provides an heir or next of kin, in lieu of the owner himself doing so. See HEIR; SUCCESSION; WILL. A person may die partially intestate, for his will may have included only some of his property, in which case the property not so included goes to the heir-at-law, or next of kin, according as it is real or personal estate, as if no will had been made. But it is often a difficult question in construing the will, whether the property not specially mentioned was not conveyed by general words to the residuary legatee or devisee—a question which turns entirely on the language used in each case.

INTESTINES. See DIGESTION, ORGANS AND PROCESS OF.

INTON'ING, according to the general use of the word, is the recitative form of offering prayer. Intoning differs from ordinary reading in having fewer inflections of the voice, and these only at stated parts of the prayers, and according to certain rules. The greater part of the prayer is recited on one note, the last two or three words being sung to the proximate notes of the scale. In the longer prayers, the terminal inflection is generally omitted. The words intoning and chanting are sometimes used interchangeably, but, though there is ground common to both, each has a domain peculiar to itself. Intoning may be defined as ecclesiastical recitative, and when several voices are employed in its performance, they sing, for the most part, in unison, breaking into harmony at the termination of the clause or sentence. Chanting embraces recitative and rhythm, both divisions being in continuous harmony. In the Anglican service, as performed in cathedral churches, all those parts of the ritual, speaking generally, which are not set to rhythmical music, are intoned; these embrace that part of the morning and evening service which precedes the daily psalms, the litany, and the prayers in general.

John Marbeck (1550) was the first in England to adapt the offices of the reformed church to music; his work contained melody only. He was followed by Thomas Tallis, who flourished during the reigns of Henry VIII., Edward VI., Mary, and Elizabeth. The grave melody (founded on the ancient usage) and sublime harmonies of Tallis have never been equaled, and have continued in use till the present day with but slight modification. Tallis seems to have invented the form of the Anglican chant now used for the psalms. In the Roman Catholic church these are sung to the Gregorian tones. See GREGORIAN CHANT. The canticles are sung to rhythmical music of a more elaborated character, in which form they are technically named "services." The lessons, previous to the last review (1661) of the *Book of Common Prayer*, were intoned; since then, the invariable practice has been to read them.

The practice of intoning existed among the Jews at a very early period, and there is great probability that the ecclesiastical chant in present use throughout Christendom is but a modification of that which formed part of the ancient Jewish ritual. The eastern and western churches, at variance on most points, are at one on this. Mohammedans also make use of this mode of prayer; and barbarous tribes (American Indians and South Sea islanders) are wont to propitiate their false gods in a species of rude chant; all which seems to point to some deeply-seated instinct of human nature, and to indicate an intuitive perception of the truth, that a solemn and reverential manner, distinct from his manner of ordinary intercourse with his fellows, best befits the creature in his approaches to the Creator. The Lutheran church and the church of England have continued the practice, though only to a permissory and non-essential extent. The latter uses it in her cathedral and collegiate churches, and in these vast edifices its advantages over reading are strikingly manifest.

INTOXICATION. Whether induced by fermented liquors or by distilled spirits, it is through the alcohol contained in either that the effects of intoxication ensue. These may be considered under two heads: 1. As they immediately manifest themselves during a single act of intoxication; and, 2. As they gradually arise through the frequent repetition of the act. The one refers to the state of drunkenness simply, the other to the habit (intemperance).

The effects of alcohol, in a single act of intoxication, vary according to the way in which the spirit has been taken. If swallowed rapidly, in large quantities or in a concentrated form, the agency is that of a powerful narcotic poison. The mode of action here is partly through a direct impression by the alcohol on the nerves of the stomach, and partly by its absorption into the blood, and its transmission thus to the brain, which is proved to take place with great rapidity. The individual falls into a deep stupor, from which it is impossible to rouse him. The face is ordinarily livid, with a swollen aspect, but sometimes it is ghastly pale. The skin is covered with chilly damps; the pulse is feeble, or perhaps wholly imperceptible; the breathing is slow and weak, though sometimes laborious and snorting; the eyes are rolled upwards, with contracted, or occasionally, dilated pupils; the jaws are clenched, and there are frequently convulsions. Where death follows, it may ensue in a few minutes, or after a period varying from a single hour to a day. Where the quantity taken is swallowed more slowly, as in ordinary drinking, the conseqences are those which are too familiarly known as characterizing a fit of drunkenness, and are the product of the more gradual and less excessive absorption. The first effect is that of a feeling of wellbeing, diffused over the body, and imparted to the mind. This gradually leads to a state of exhilaration, and thence to boisterous mirth and loquacity, attended at first by a swift transition and vivacity of the ideas, but speedily lapsing into indistinctness and confusion. In the increasing whirl of excitement, the individual loses all sense of prudence and self-government, betrays himself by his indiscretions, provokes pity and ridicule by his follies, or incurs danger by his recklessness. Along with this mental condition, the flushed face, flashing eye, and throbbing brain show, at first, the corresponding state of excitement of the bodily functions; while, along with the subsequent confusion of thought, the reeling gait and the look of stolid incomprehension denote the inthrallment that has followed. In a further stage, the memory fails, the individual maunders and mumbles in his speech, and the surrounding objects, recently seen imperfectly and misapprehended, wholly cease to impress him. At length, amid other loathsome concomitants, he sinks powerless, and stupor intervenes, from which he again awakens to consciousness after an indefinite number of hours; but then usually to suffer from qualms of sickness and other feelings of pain and depression, entailed upon him by a natural law as the reaction from his excess, and only dispelled after a still longer interval. The outline of the effects may vary. With some, the progress of a fit of drunkenness is never attended by hilarity or other conspicuous excitement, and a dreamy and subdued forgetfulness seems all that is produced or that is sought for. With some, even, it leads to a state of querulousness or of unreasoning melancholy. With others, the condition is one of furious madness, hesitating before no extreme of violence and outrage.

It is chiefly to the after-effects of the paroxysm that we are to trace the original growth and ultimate inveteracy of the drunken habit. The uneasy sensations of depression, following upon the excitement of the previous debauch, are sought to be relieved by a fresh recurrence to the stimulant; and a morbid appetite is thus created which craves its relief, and finds it, in the renewed administration of spirituous drinks, just as the natural appetite of hunger develops those sharp disquietudes that are allayed by food. This morbid appetite, in so far as it is morbid, may in itself be regarded and treated as a disease. But the universal health shows ultimately signs of a more deep injury. The cheeks begin to have a bloated and flabby look, with a complexion that either wears a peculiar pallor, or verges into shades of purple, while the nose not rarely presents a suspicious tinge of crimson. The appetite for ordinary food fails, the digestion is impaired, the sleep is disturbed, and the vigor of frame and capacity for exertion sink accordingly, the limbs often aching and trembling, and the heart drooping with a miserable feeling of nervous exhaustion. Even prior to this, the drunkard is often liable to those minor illusions which end in the full development of what is known as the drunkard's delirium,

or *delirium tremens*, a form of temporary insanity characterized by a state of abject terror, with shaking of the limbs, the sufferer fancying that he is surrounded with monstrous phantasms, or that he is devoted otherwise to horrors, disasters, or crimes. One effect, and a leading one, of the customary presence of alcohol in the blood of the drinker, is to reduce the vitality of that fluid, so that it tends to sustain only the lowest forms of nutrition and animalization, and deposits, in great part, merely an inert fat within those organs where it should minister to the growth and maintenance of a delicate construction, destined for uses essential to life. Thus we have fatty deposits, or changes of higher structures into fat, in the heart, the liver, and in the blood-vessels, the coats of the last becoming easily ruptured. Hence, liability to diseases of the heart and of the liver often followed by dropsies, or to affections of the other intestines, or to attacks of apoplexy and palsy. If not cut off abruptly in his career, the life of the drunkard becomes one long malady towards its close, the final condition being usually one of imbecility of mind and body, yet with throes of suffering to the last. It has been authoritatively shown that, while the average expectation of future life to the temperate man at 50 may be reckoned at 20 years, that of the drunkard at the same age is only four years. Again, between the ages of 21 and 30, the deaths among drunkards have been found to be more that five times, and between 31 and 50, more than four times what occur among the general community at the like ages. See DIPSOMANIA and DELIRIUM TREMENS.

INTOXICATION, or DRUNKENNESS, is, in point of law, no excuse for any wrong done by the drunken party. Crimes which are committed in a state of drunkenness are punishable in the same way as if the actor were sober, though it is discretionary in the court to mitigate the sentence. As regards contracts entered into by a drunken party, there is no peculiarity, unless the fact of drunkenness was taken advantage of by the sober party, in which case it lies on the drunken party to prove this. Cases may no doubt arise where the drunkenness may be an element of fraud, and so the contract or deed may be rescinded or set aside. The mere act or state of drunkenness, when privately indulged in, is not an offense against the law; but if it be shown in public, it may become so. If, for example, a person be drunk in the streets or a public place, he was made, by a statute of James I., liable to be fined 5s., or, if unable to pay, to be committed to the stocks for six hours. By a more modern enactment of 1872, called the intoxicating liquors licensing act, which repealed the older statute, every person found drunk in a highway or public place, or in a licensed house, is liable to a penalty of 10s.; and on a second offense within 12 months, to 20s., and on a third offense within 12 months, to 40s. To be drunk and riotous, or be druuk while in charge of a horse or carriage, or of a gun, is punishable with a fine of 20s., or imprisonment for one month. Local acts also often impose other penalties. In Scotland several ancient statutes were passed against drunkenness, which, however, are in desuetude. In several local police acts a penalty is imposed on drunkenness in the streets, and the police and improvement act of Scotland, 25 and 26 Vict. c. 101, s. 254, subjects drunken persons in the streets to a penalty of 40s., or 14 days' imprisonment, in all places where that act is adopted.

INTRA'DOS, the under or inner side or soffit of an arch (q.v.), the upper or outer curve being called the *extrados*.

INTRANSIGEN'TES, the name of a political party in Spain, comprising the extreme radical republicans. The federal republic having been declared June 8, 1873, they combined with the internationals in a communistic movement, which broke out in insurrection in several cities at once. Cartagena was held by them from July, 1873, until Jan., 1874, when it was surrendered. These troubles brought about the restoration of Serrano to the executive government, and led up to the proclamation of Alfonso XII. as king of Spain.

INTRENCHMENT, in a general sense, is any work, consisting of not less than a parapet and a ditch, which fortifies a post against the attack of an enemy. As a means of prolonging the defense in a regular work of permanent fortification, intrenchments are made in various parts, to which the defenders successively retire when driven in from forward works. Bastions are ordinarily intrenched at the gorge by a breastwork and ditch, forming either a re-entering angle or a small front of fortification. Such a work across the gorge of the Redan at Sebastopol caused the repulse of the British attack in Sept., 1855. A cavalier, with a ditch, is also an intrenchment. An army in the field often strengthens its position by intrenchments, as by a *continued line* of parapet and ditch, broken into redans and curtains, or by a *line with intervals*, consisting of detached works of more or less pretension flanking each other.

INTRENCHMENT (*ante*). See FORTIFICATION, *ante*.

INTRODUCTION (Ital. *introduzione*), in music, is a kind of preface or prelude to a following movement. Formerly, the introduction was only to be found in large musical works, such as symphonies, overtures, oratorias, etc.; but now it is found in every rondo, fantasia, polonaise, waltz, etc., on the principle that it is considered abrupt to begin all at once, without preparing the audience for what is to come. In a stricter sense, introduction is applied to the piece of music with which an opera begins, and which imme-

diately follows the overture. In some cases, the overture and introduction are united, the composition going on without any formal pause, as in Gluck's *Iphigénie en Tauride*, Mozart's *Idomeneo* and *Don Giovanni*. As the overture, which contains a harmonical sketch of the opera, should make a permanent impression on the audience, the custom of uniting it with the introduction has very properly been discontinued, and the introduction treated as an independent movement.

INTROMISSION, in Scotch law, is the assumption of legal authority to deal with another's property. It is divided into legal and vicious. Legal intromission is where the party is expressly or impliedly authorized, either by adjudgment or deed, to interfere, as by drawing the rents or getting in debts. Vicious intromission is where an heir or next of kin, without any authority, interferes with a deceased person's estate; as, for example, where a person not named by a will, or without the authority of any will, collects the property of the deceased person, as if he were regularly appointed. By so doing, the vicious intromitter incurs the responsibility of paying all the debts of the deceased. The vitiosity, however, may be taken off by the intromitter being regularly confirmed executor. The corresponding phrase in England to a vicious intromitter is an *executor de son tort*.

INTRU'SION, the Scotch law-term for a trespass on lands.

INTUI'TION. See INSTINCT, and COMMON SENSE.

IN'TUS-SUSCEPTION, or INVAGINATION, is the term applied to that partial displacement of the bowel in which one portion of it passes into the portion immediately adjacent to it, just as one part of the finger of a glove is sometimes pulled into an adjacent part in the act of withdrawing the hand. In this case, the contained portion of intestine is liable to be nipped and strangulated by the portion which contains it, and all the danger of hernia (q.v.) results, with far less chance of successful interference on the part of the surgeon or physician. It is one of the most frequent and fatal causes of obstruction of the bowels. The extent of the intus-susception may vary from a few lines to a foot or more. Even when inflammation is set up, the affection, although in the highest degree perilous, is not of necessity fatal. The invaginated portion mortifies and sloughs, while adhesion is established between the peritoneal surfaces of the upper and lower portions at their place of junction, so that the continuity of the tube is preserved, although a large portion may be destroyed. If the patient is strong enough to bear the shock of the inflammation, gangrene, sloughing, etc., a complete recovery ensues.

INULIN. See ELECAMPANE.

INUNDATIONS AND FLOODS are produced by the overflow of the ocean or of rivers. To these the low countries adjacent to the sea or rivers are liable. Holland, many of whose cities and fields are upon ground snatched from the ocean, presents the most frequent scene of these calamities. In the year 860 A.D., the sea rose and swept over a portion of the Netherlands, carrying with it vast tracts of land, and changing the very shape of the coast. In 1014 a large part of the Netherlands and England, and in 1134 a part of Flanders, were submerged. In 1164 a part of Friesland and the lowlands of the Elbe and Weser were inundated. On All Saints' day in 1170 the northern part of Holland was visited with a flood so terrific that miles of country were swallowed up by the encroaching sea, and exactly to a day 400 years later the south of Holland was ravaged by the waves, so that Antwerp, Bruges, Hamburg, Rotterdam, and Amsterdam were submerged, and 30,000 people perished. In 1277 an inundation from the sea destroyed 44 villages; in 1287 by another 80,000 persons were drowned, and the Zuyder Zee received its present form and extent. In the 15th c. it is said that 100,000 were destroyed through the imperfection of dikes. In 1362 a flood destroyed 30 villages on the coast of Nordstrand. The St. Elizabeth flood of 1377 swept away 72 villages, laid desolate 50 m. of territory, and altered the course of both the Maas and Rhine. By the formation of dunes and an elaborate system of dikes the Dutch have succeeded of late years in keeping the restless invader at bay, and thus avoiding a national calamity. But while the dunes have done much to save the Netherlands from great loss, yet these would have afforded but a partial barrier without dikes. When dikes were first used is not known. In the 7th c. Friesland was diked by king Adgillus, and in the 8th c. Zealand by the Danes and Goths. When Spain ruled Holland, the dikes, not being kept in good condition, the engineer Caspar de Robles, governor of Friesland, compelled the people to repair them, and set his own soldiers to work.

Other countries besides Holland have suffered from the encroachments of the ocean. England, notwithstanding her barrier of high cliffs, has been the victim of several inundations. In 1607 the greater part of south Devonshire and the neighboring countries of Dorset and Cornwall were deluged by a sea-flood that caused a fearful loss of life and property. Denmark too, in 1634, was visited with an inundation, when the sea with a mighty sweep which reached even Bremen, Hamburg, and Oldenburg, poured over the villages of the Nordland, destroying more than 20,000 human beings and 150,000 cattle. In 1717 the waters overflowed the northern coast, and ruined an immense number of buildings. In 1825 the waters rose to a great height, the flood being ascribed to an earthquake.

The floods from rivers are sometimes beneficial, as, for instance, those of the Nile,

which fertilize with their deposit the alluvial plains. But for the most part they are destructive, and those of modern times have been more disastrous than earlier ones. The direct cause of river-floods is the discharge of water into the channels more rapidly than it is carried off. The most effectual remedy against these disasters is high and solid dikes, though even these are sometimes unavailing. In 1829 an inundation occurred at Dantzic, occasioned by the Vistula breaking through its dikes, when 4,000 houses were destroyed, many lives lost, and 10,000 cattle perished. In France, Oct. 31 to Nov. 4, the Saone poured its waters into the Rhone, broke through its banks, covered 60,000 acres, and inundated several cities and towns. The Saone had not risen so high for 238 years. May 12, 1849, there was an inundation of the Mississippi at New Orleans, when 160 squares and 1600 houses were flooded. At different times the inundations of the Ohio, Mississippi, and other rivers have destroyed much property and many lives. The most destructive inundation of modern times is that which occurred in Hungary, March 12, 1879. Szegedin, the second commercial town in Hungary, was nearly destroyed by the bursting of the dikes of the river Theiss. The first intimation of the coming calamity was given Monday, March 10, when two of the three dams protecting the town gave way, and Dorozsma near Szegedin, containing 400 houses, was totally destroyed. Though 5,000 men were immediately set to work on the remaining embankment, two days later it burst, and the waters, aided by a gale, rushed forth with terrific violence, carrying away part of the railway station and rolling-stock, and flooding the town with many feet of water. Two-thirds of the town were submerged, including the citadel, the post and telegraph offices; and whole rows of houses fell. The synagogue fell in, crushing many who had sought refuge in it, and the inmates of the orphanage were buried in its ruins. Two manufactories were burned. To add to the horrors of the scene the city was in darkness, the gas-works being 15 ft. in the water; 80,000 people were houseless, and from 4,000 to 6,000 supposed to have been drowned. Of 9,700 houses all but 261 were destroyed. A hundred square miles in the neighborhood of Szegedin were flooded and the crops of the district lost. So sudden and violent was the flood that, instead of five or six hours which it was calculated the flood would take to spread through the town, scarcely an hour and a half had passed before Szegedin was submerged. The poorer classes were extremely unwilling to leave their homes, and in many cases force was necessary for their removal. Thousands suffered for want of food, and sickness broke out among the refugees encamped on the dikes.

INUUS, or INNUUS, a genus of apes, to which the Barbary ape (q.v.) belongs. The Barbary ape is *I. sylvanus.*

INVALIDES, wounded veterans of the French army, maintained at the expense of the state. The *Hôtel des Invalides* is an establishment in Paris where a number of these old soldiers are quartered. Its chapel contains the tomb of the great Napoleon, and is an object of much attraction to all visitors. It was founded by Louis XIV. in 1671, and during his reign and for a long time afterwards was a place of retirement for the aged servants of court favorites as well as for invalided soldiers; but this abuse was put an end to by St. Germain in Louis XV.'s reign. In 1789 the hôtel had a revenue of £68,000, but during the time of the republic its property was alienated and the institution supported from the public revenue. The hôtel can accommodate 5,000 men, and the actual number of inmates is not much below this.

INVALID'ING signifies the return home or to a more healthy climate, of soldiers or sailors whom wounds or the severity of foreign service has rendered incapable of active duty. The man invalided returns to his duty as soon as his restored health justifies the step.

INVARIABLE PLANE. The position of a point in space is determined—as explained in the article CO-ORDINATES—by referring it to planes intersecting one another at right angles; and in ascertaining the motion of the point by this means, the planes must either be immovable or allowance must be made for their altered position, an operation of considerable complexity. In astronomy none of the obviously marked planes, such as that of the ecliptic (q.v.) or of the equator (q.v.), possess this requisite quality of fixity so as to form a convenient basis for determining the position of heavenly bodies with absolute exactness. Laplace, therefore, conferred a boon on astronomy, when he discovered that in the solar system there does exist "an invariable plane, about which the orbits perpetually oscillate, deviating from it only to a very small extent on either side. This plane passes through the center of gravity of the solar system, and it is so situated that if all the planets be projected on it, and if the mass of each planet be multiplied into the area, corresponding to any given time which is described by the projected radius vector, the sum of such products will be a maximum. By means of this property, which is independent of any particular epoch, it will be easy for astronomers in future ages to determine the exact position of the plane, and to compare observations together by means of it" (*Grant's History of Physical Astronomy*). Such a plane is not peculiar to the solar system, but must exist in all systems where the bodies are acted on by no other force than their mutual attraction. See FORCE.

INVEC'TA ET ILLA'TA, a phrase used in Scotch law to denote all things which a tenant has brought upon the premises, as his household furniture, tools, utensils, etc.; also, in case of thirlage, all corn brought within the limits of the thirl or servitude.

INVECT'ED, or INVECKED. See ENGRAILED.

INVENTION. See PATENT.

INVENTORY, a list or schedule of goods or property setting forth the particulars, so as to inform parties interested. The term is used in England in reference to an executor or administrator making out a list of the deceased person's effects. In Scotland it is also used in reference to the property of an infant, pupil, or minor, whose estate is under the care of a guardian, tutor, curator, judicial factor. In Scotland it is also used in connection with the various pleadings and deeds and documents produced or used in a suit or action, then called an inventory of process. So as to an inventory of titles, that is, the titles of an estate shown to a purchaser.

INVERA'RAY, a small royal and parliamentary burgh and seaport of Scotland, the county town of Argyleshire, is picturesquely situated on the w. shore of loch Fyne, where the river Aray falls into the loch, 45 m. n.w. of Glasgow. It consists of one principal street running parallel to the loch, and a square with a church in the center. An obelisk, standing near the church, commemorates the death of 17 gentlemen, all Campbells, who were executed here without trial in 1685, for their adherence to Presbyterianism. Close to the town stands Inveraray castle, the chief residence of the dukes of Argyle. Inveraray, the ancient town, the capital of the West Highlands, was situated at some distance to the n. of the present town. Not a vestige of it now remains. The trade of Inveraray is chiefly in herring-fishing. Pop. in 1881, 870.

INVERCARGILL, a t. in the province of Otago, New Zealand, formerly capital of Southland when a province, lies at the mouth of the New river. It possesses four banks and several churches. The surrounding district is principally taken up with pastoral operations. The town is a telegraph station, and two newspapers are published. It is a terminus of the Bluff Harbor and Invercargill railway; and several other lines are in course of construction or projected. Pop. '81, 4,592.

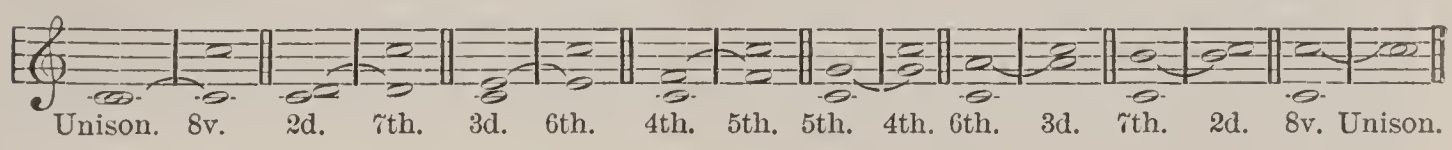
INVERNESS', a royal, parliamentary, and municipal burgh, situated at the mouth, and mostly on the right bank, of the river Ness. It is the chief town of the county to which it gives name, and may be regarded as the capital of the Highlands. Its environs, well cultivated and beautifully wooded, are almost surrounded by mountains and hills of various heights, forming altogether a most picturesque and interesting landscape. Pop. '81, 17,386; annual value of real property (1878–79), £68,161; corporation revenue (1877–78), £3,642. It unites with Fortrose, Nairn, and Forres in returning one member to parliament. The first charters of Inverness as a burgh are granted by king William the lion (1165–1214 A.D.). By one of these it is stipulated that when the king has made a ditch round the burgh, the burgesses shall make a palisade on the edge of the ditch, and keep it in good repair forever. In 1411 the town was burned by Donald, lord of the isles, on his way to Harlaw (q.v.). Macaulay, writing of the year 1689, describes Inverness as "a Saxon colony among the Celts, a hive of traders and artisans in the midst of a population of loungers and plunderers, a solitary outpost of civilization in a region of barbarians." The castle-hill, on the s. side of the town, part of an old sea-terrace, was the site of a castle, which, in 1303, was taken by the adherents of king Edward I. of England, but subsequently retaken by those of king Robert Bruce. King James 1. is said to have held a parliament in the castle in 1427. An iron suspension-bridge, constructed in 1855, connects the two parts of the town. In the High street stands the town-cross, and beside it the famous Clach-na-cuddin, a lozenge-shaped blue slab, formerly regarded as the palladium of the burgh. In the same street are the town hall and exchange, built in 1708. Of the old religious foundations of Inverness, there is little more than mere tradition. The Dominicans seem to have had a monastery, founded by king Alexander II., in 1233. The Franciscans also are believed to have had a convent in the town. Among more modern buildings and foundations may be enumerated Raining's school, established 1747; the spire of the old jail, 150 ft. high, built in 1791, curiously twisted by the earthquake of 1816, and since readjusted; the royal academy, 1792; the county buildings and jail, on the site of the castle, 1835; and St. Andrew's cathedral, a fine Gothic building, the foundation-stone of which was laid in Oct., 1866, by Dr. Longley, archbishop of Canterbury. There is a small woolen manufactory, a workmen's club and library, several printing establishments, three newspapers, a native bank (the Caledonian), and five other banking-offices. Inverness has still its four great annual fairs, but the establishment of shops throughout the county has greatly diminished their importance. It has three harbors, built at different times, and a considerable amount of shipping by the Moray firth and the Caledonian canal, which connects it with the w. coast.

INVERNESS, a co. of Cape Breton island, Nova Scotia, Canada; pop. '81, 25,651; soil fertile. Coal and petroleum are found. Fishing and agriculture are the chief occupations of the people. Capital, Port Hood.

INVERNESS-SHIRE, the largest co. of Scotland, includes Badenoch, Glenroy, and the valley of the Spey on the e.; Lochaber on the s.; Glenelg, Glen Garry, Arisaig, Moydart, and Fraser's county on the w.; Glen Urquhart and Glen Morriston towards the center. It includes also Strathglass on the n., and several of the Western islands, viz., Skye, Harris, north and south Uist, and Barra, etc. The mainland portion lies between n. lat. 56° 40′ and 57° 36′, and w. long. 3° 30′ and 5° 55′; and is bounded on the e. by the coun-

ties of Aberdeen, Banff, Elgin, and Nairn; on the s. by Perth and Argyleshire; on the w. by the Atlantic and Ross-shire; and on the n. by Ross-shire. It measures from n.e. to s.w. 85 m., and from n.w. to s.e. 57 m.; and has an area of 4,256 sq.m., of which more than two-thirds consist of barren heath. The wildest and most mountainous portion is towards the w., comprising a tract 70 m. in extent, and designated the *Rough Bounds.* The most extensive moss in Great Britain lies on the s. of Badenoch, where, in the naturally formed wooded islands,large herds of deer find a refuge. These mosses had at one time been mostly, if not wholly, covered with trees, some of them of great magnitude. In Strathspey, three tiers of stocks, one above another, have been found, showing that a succession of forest trees must have grown up, flourished for ages, and then, one after another, disappeared by the work of time or the axe. At present, the natural pines occupy a larger space than in any other county of Britain. There are also many thousand acres of plantations of ordinary forest trees. Some mountains attain considerable altitude. Ben Nevis, now ascertained to be the highest in Great Britain, is 4,406 ft. above the level of the sea Cairngorm, partly in this county, is 4,050 ft. high. The geological formation of the county is various; but primary rocks, consisting of gneiss, mica-slate, granite, porphyry, and trap rocks, mostly prevail. The most fertile soil of the county rests on the red sandstone in the valley of the Aird, and between the county town and Beauly. There are several lakes of some extent, as loch Ness, loch Lochy, loch Laggan, loch Ericht, and a number of other lochs forming arms of the sea. The principal rivers are the Ness, Spey, Lochy, Beauly, Findhorn, Nairn, Garry, Morriston, and the Foyers (q.v.). The county is divided among 80 or 90 proprietors, a few of whom possess above 100,000 acres of surface. The old valued rent (1674) was £6,099 ; the valuation for 1880-81 was £322,873, exclusive of railways and canals, which amounted to £20,075. According to the agricultural returns of 1876, the total acreage under all kinds of crops, fallow, and grass, was 125,831: 40,221 acres were under corn crops, 22,421 under green crops, 26,895 under clover and grasses under rotation, 35,228 with permanent pasture (exclusive of heath and mountain-land). Of the land under crops, 738 acres were wheat, 7,169 barley, 31,067 oats, 1109 rye. Of land under green crops, 8,017 acres were potatoes, 14,234 turnips, 162 vetches, etc. Of live-stock, there were 9,008 horses, 54,742 cattle, 724,518 sheep, and 4,127 swine. There are comparatively few antiquities worth noting in the county. These consist principally of remains of vitrified forts and ruins of old castles. The battle which decided the fate of the Stuarts was fought April 16, 1746, on Culloden moor, a few miles from Inverness. The Gaelic language is still generally, but in scarcely any district exclusively, spoken. Pop. in 1881, 90,454. The constituency returns one member to parliament.

INVERSION, in music, is the transposing of one of the two notes of an interval by an octave upwards or downwards, to a position the reverse of that which it before occupied with respect to the other note, so that if the transposed note was the lower note of the two, it shall now be the higher one, and *vice versâ.* The new interval thus formed takes its name from the complement of the octave; for example, a unison inverted becomes an octave, a second becomes a seventh, a third becomes a sixth, a fourth becomes a fifth, a fifth becomes a fourth, a sixth becomes a third, a seventh becomes a second, and an octave becomes a unison. The following shows how these arise:



By inversion diminished intervals become augmented, and augmented become diminished; major become minor, and minor become major; but perfect intervals are also perfect when inverted. For inversion of chords, see CHORD. An important use is also made of the word inversion, in reference to a whole passage or phrase, for which see article COUNTERPOINT.

INVERTEBRATE ANIMALS, *Invertebrata,* are those animals which have not a vertebral column or spine. The division of animals into *vertebrate* and *invertebrate* is a natural and unavoidable one, acknowledged in all systems of zoology. But these groups being formed, the one on a positive and the other on a negative character, are by no means of equal value in the classification of the animal kingdom. In Cuvier's system, the invertebrate animals form three of the great divisions of the animal kingdom—viz., *mollusca, articulata,* and *radiata,* each of which, like *veretebrata,* exhibits a peculiar type of structure. There are also animals of lower organization than those which can with certainty be referred to these divisions, although included by Cuvier amongst the *radiata,* forming the *acrita* and *protozoa* of recent systems. Amongst the lower invertebrate animals, much more than amongst vertebrate animals, the arrangement into groups must be regarded as at present, in a great measure, tentative and provisional; although in the higher departments of invertebrate zoology many of the classes and other groups are very well defined. The organization of some of them, as insects, however different from that of vertebrate animals, is not evidently lower, but exhibits a perfection as admirable as in any of them, whilst all vital powers are most fully displayed.

INVERTEBRATE ANIMALS (*ante*). The following synopsis is a general classification, according to the latest and best authorities, of the principal divisions of the invertebrate branch of the animal kingdom, including classes, orders, and most of the families. It will serve, also, as a reference or index to the various articles scattered throughout the work, which specially treat of genera and species. The etymology of the principal names is usually given except when found in the articles referred to.

Sub-kingdom I. Protozoa, first or lowest animals; very simple, mostly microscopic; body composed of a jelly-like, albuminous substance, having no nervous, and no distinct circulatory, system; usually no mouth and no special digestive cavity. See Protozoa.

Class A. Gregarinida (Lat. *gregarius*, living together in numbers). Very minute organisms inhabiting the interior of insects and other animals. They have no power to throw out prolongations as in rhizopoda. This class has only one order. See Gregarines.

Class B. Rhizopoda (q.v.). Protozoa having the power of throwing out and retracting prolongations (pseudopodia) of the body substance; no mouth, with few exceptions. Divided into five orders:

Order I. Monera (Gr. *monas*, unit). Minute organisms having the power of throwing out thread-like prolongations, which are a part of the structureless body (*sarcode*). These pseudopodia branch out in all directions, interlacing and anastomosing. When at rest the body is more or less globular. There is no nucleus or contractile vesicle.

Order II. Amœbea (Gr. *amoïbos*, changing). Rhizopods which are usually naked, having short, blunt pseudopodia which do not anastomose. They contain a nucleus and one or more contractile vesicles. The amœba or proteus animalcule is the type of the order. It is a microscopic animal, which makes its appearance in vegetable fresh-water infusions. It is composed of two layers of gelatinous matter, called the entosarc and the endosarc, or outer and inner layers. The endosarc contains the nucleus and contractile vesicle or vesicles, and also cavities called vacuoles. There are no traces of any nervous system in the amœba, and yet it possesses locomotive power.

Order III. Foraminifera (Lat. *foramen*, an aperture). Rhizopods in which the body is protected by a shell or *test*, usually composed of carbonate of lime. Body not divided into entosarc and endosarc, as in amœba; and there is neither nucleus nor contractile vesicle. Pseudopodia long, thread-like, and interlacing. The foraminifera are mostly marine. Dr. Carpenter says that foraminiferous fauna probably have a greater modern range of seas than at any previous period, but there is no indication of any tendency to elevation to a higher type. There are vast deposits of them in the deeper portions of the Atlantic ocean, where the water is warmed by heated currents. There are several genera and species, many of them presenting rarely beautiful forms. Foraminifera have been found in paleozoic and mesozoic formations, and the *eozoön Canadense*, found in the Laurentian rocks of Canada, has been thought to be a gigantic foraminifer. See Foraminifera.

Order IV. Radiolaria (Lat. *radius*). Rhizopods having a siliceous shell or test, or siliceous spicules, and pseudopodia standing out like radiating filaments, sometimes interlacing. There are three families.

Family 1. *Acanthrometrina*, minute globular bodies, surrounded by siliceous, radiating spines, often floating near the surface of the ocean, sometimes in great numbers.

Family 2. *Polycistina*. Nearly related to foraminifera, the principal difference being that the shells are flinty instead of calcareous. The siliceous shell is sometimes exceedingly beautiful. They are all microscopic, and have a wide distribution in the ocean. They are also abundant tertiary fossils.

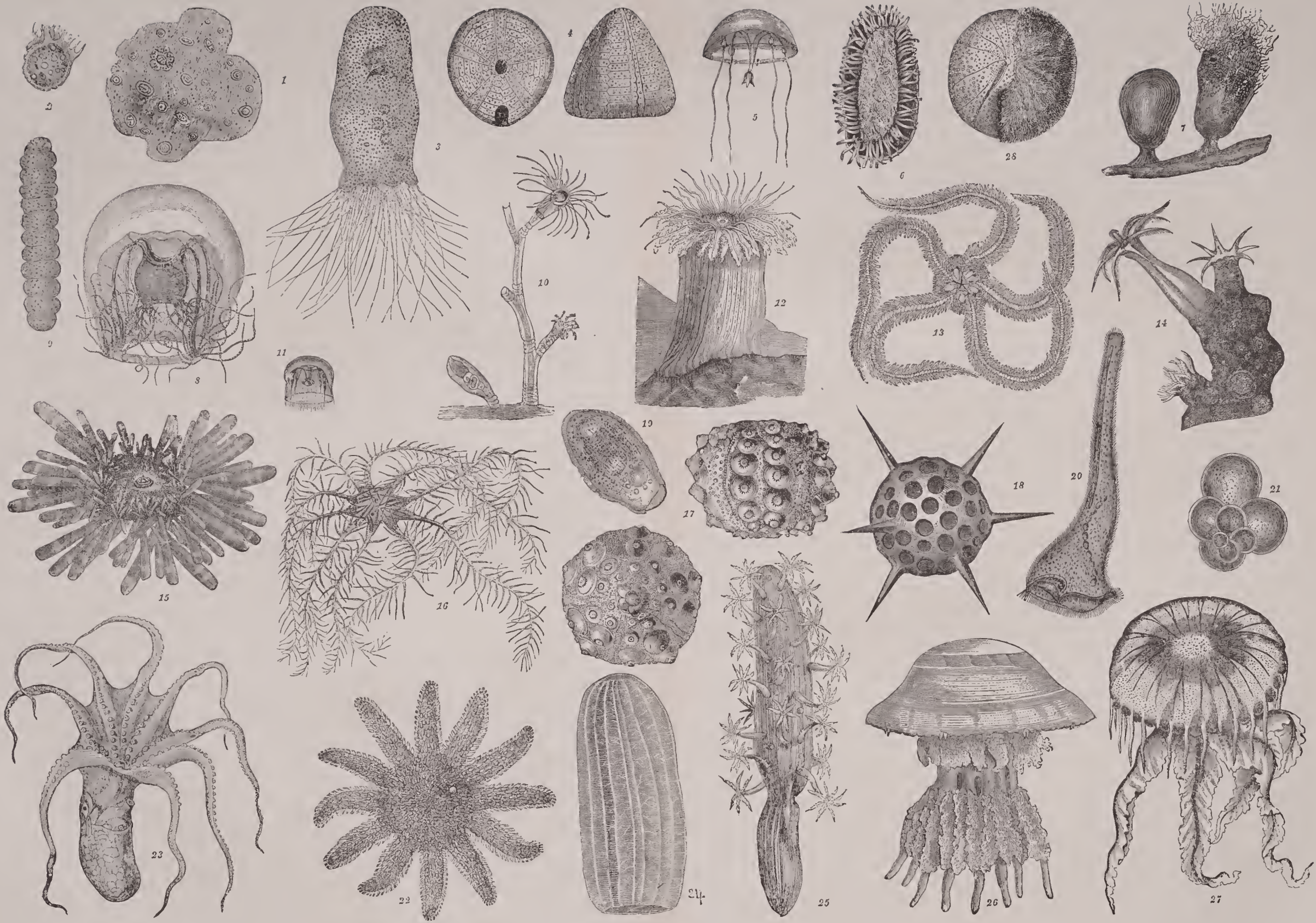
Family 3. *Thalassicollida* (Gr. *thalassa*, sea, and *kolla*, glue). Rhizopods having "structureless cysts containing cellular elements and sarcode, and surrounded by a layer of sarcode, giving off pseudopodia, which commonly stand out like rays, but sometimes have the form of a network" (Huxley). They are simple, or composite. The three best known genera of the family are *sphærozoun*, *collosphæra*, and *thalassicolla*. They abound in most seas, floating near the surface; size, from an inch in diameter downwards.

Order V. Spongida or *Porifera* (q.v.). "Sarcode bodies destitute of a mouth, and united into a composite mass which is traversed by canals opening on the surface, and is almost always supported by a frame-work of horny fibers, or of siliceous or calcareous spicula" (Allman). See Sponge.

Class C. Infusoria (Lat. *infusum*, an infusion). Protozoa usually provided with a mouth and rudimentary stomach. They have vibrating cilia or contractile filaments, but no pseudopodia; bodies microscopic, usually consisting of three layers; occur in infusions. Divided into three orders:

Order I. Ciliata (Lat. *cilium*, an eyelash). Infusoria in which the outer layer of the body has more or less vibratile cilia, or hair-like organs, for locomotion or procuring food. Some are provided also with jointed bristles; others have hooks for attaching themselves to other bodies. The typical members of the order are *paramœcium* and *vorticella* (q.v.). See Infusoria.

Order II. Suctoria. Infusoria in which the body is covered with a number of radi-



INVERTEBRATES. — 1. Bathybius. 2. Amœba. 3. Plagiophrys. 4. Star-fish. 5. Georyoma. 6. Sea nettle. 7. Trichia. 8. Bongainvillia. 9. Collozoum. 10. Bell-polyp. 11. Tiaropsis. 12. Phyllactis. 13. Serpentine star-fish. 14. Single polyp. 15. Sea-urchin. 16. Pentacrinus. 17. Hemicidaris. 18. Texularia. 19. Opalina. 20. Trumpet-animalcule. 21. Globigerina. 22. Star-fish. 23. Tulip-polyp. 24. Beroé. 25. Sea-cucumber. 26. Rhizostoma. 27. Corn-flower sea-nettle. 28. Nut-urchin.

ating, retractile, filamentous tubes, having at their extremities suctorial disks, by means of which they obtain food.

Order III. Flagellata. Infusoria having lash-like filaments (flagella) and occasionally cilia. Some have one and some two flagella, and some are composed of numerous zoöids, each with a single flagellum and projecting membranous collar, all contained in a slimy sarcode, and forming a cylindrical colony.

Sub-kingdom II. Cœlenterata (q.v.). This sub-kingdom is the modern representative of the Radiata of Cuvier, with the following exceptions: The echinodermata and solecida have been removed to form annuloida; all of protozoa, to form that sub-kingdom; and polyzoa have been placed with mollusca. The remainder of radiata constitute cœlenterata, a name proposed by Frey and Leuckhart, from Gr. *koilos*, hollow, and *enteron*, the bowel. The principal feature of this sub-kingdom is the peculiar structure of the digestive apparatus; the body cavity and the stomach being one and the same. In some of the cœlenterata, however, there is a wide membranous tube leading from the mouth into the general interior cavity. This sub-kingdom is divided into two classes, hydrozoa and actinozoa. See Polypi.

Class A. Hydrozoa (Gr. *hudra* and *zoön*, animal; hydra animal). Cœlenterata in which the walls of the digestive cavity entirely coincide with those of the body cavity. The reproductive organs are external processes of the body. They are all aquatic, mostly marine. The hydrozoa are divided into six sub-classes:

Sub-class I. Hydroida. See Hydroids. This sub-class comprises six orders:

Order I. Hydrida. Fresh-water polyp.; only one genus, *hydra*, including various species.

Order II. Corynida (Gr. *korune*, a club). Pipe coralline (q.v.), (tubularia). The order is entirely marine, with one exception. The reproductive elements are developed in distinct buds or sacs, which are external processes of the body, called by professor Allman, *gonosphores*. There are great variations in the form of these generative buds. In some species they are mere sac-protuberances called sporosacs. There is an advance in structure in the different genera, the gonosphore being sometimes composed of a bell-shaped disk, called the gonocalyx.

Order III. Sertularida (Lat. *sertum*, a wreath). The animals of this order resemble the corynida in becoming permanently fixed after their embryonic condition. Each polypite consists of a soft, contractile and extensible body, having at its distal extremity a mouth surrounded by prehensile tenacles. The internal arrangement of the whole organism is exceedingly interesting. See Sertularia, Plumularia, and Polypi.

Order IV. Campanularida (Lat. *campanula*, a bell). This order resembles sertularida, but the gonosphores are usually detached as free-swimming medusæ, instead of being permanently attached.

Order V. Thecomedusæ. Prof. Allman has recently described a remarkable hydrozoön which he regards as the type of a new order. It is always found embedded in a species of sponge, which it permeates by chitinous (see Chitin) tubes, opening on the surface. See Stephanoscyphus Mirabilis.

Order VI. Medusidæ or *Hydromedusidæ* (acalephæ in part). The animals included in this order have often been placed in a distinct sub-class (discophora) of hydrozoa, but they are now generally regarded as simply an order of hydroid zoöphytes. They comprise most of the smaller organisms commonly known as jelly-fishes or sea-nettles, from the property of causing a stinging to any part of the human body which may be touched by them. See Acalephæ.

Sub-class II. Siphonophora (Gr. *siphon* and *phero*, I carry. All of this sub-class are permanently free, and composite. They are very beautiful, delicate organisms, chiefly inhabiting the surface of tropical seas. There are two orders:

Order I. Calycophoridæ (Gr. *kalyx*, a cup, and *phero*, I carry). The bodies of the polypites in this order are distinctly divided into three portions, called proximal, median, and distal. The proximal ends are provided with protecting plates called bracts. The calycophoridæ have swimming bells by which they propel themselves through the water. Huxley divides this order into four families: diphydæ, sphæronectidæ, prayidæ, and hippopodidæ.

Order II. Physophoridæ (Gr. *physa*, an air-bladder). The polypites of this order resemble those of the preceding in form, but the tenacles are more complicated, and are sometimes several inches in length. They also have peculiar bodies, called feelers, or pulpi, which resemble immature polypites. The reproductive organs are developed upon special processes, called gonoblastidia, which sometimes remain permanently attached, or are thrown off as free-swimming medusoids. The genus physalia is the Portuguese man-of-war. See Physalia. The order is divided into several families by Huxley.

Sub-class III. Lucernarida (Lat. *lucerna*, a lamp). These are the sea-blubbers, sea-jellies, hidden-eyed medusæ. Divided into three orders:

Order I. Lucernaridæ. This order comprises those lucernarida which have only a single polypite, and are fixed, but only for a time. Reproductive elements developed in the walls of the umbrella, without the intervention of free zoöids.

Order II. Pelagidæ (Gr. *pelagos*, sea). These animals, like the preceding, have only

a single polypite, but have an umbrella with marginal tentacles in which are developed the reproductive elements.

Order III. Rhizostomidæ (root-mouthed lucernaridæ). In this order the reproductive elements are developed in free zoöids, produced by fission from attached lucernaroids. The umbrella of generative zoöids is without marginal tentacles, and the polypites are numerous, forming with the genetalia a dendriform mass depending from the umbrella (Greene). See RHIZOSTOMIDÆ and ACALEPHÆ.

SUB-CLASS IV. GRAPTOLITIDÆ (Gr. *grapho*, I write). Rhabdophora of Allman. The members of this sub-class are all extinct, but their nearest living allies are the sertularians. Their structure is not easily made out. They are generally found in pyritous impressions, having a silvery luster, in the Silurian formations, and are characteristic fossils. See GRAPTOLITES and SERTULARIA.

SUB-CLASS V. HYDROCORALLINÆ. This sub-class has been formed by Mr. Moseley for the reception of two groups of marine animals which produce a regular skeleton of carbonate of lime, often of large size, and which have been hitherto generally referred to the corals. See MILLEPORE and STYLASTERIDÆ.

CLASS B. ACTINOZOA (Gr. *actin*, a ray). Cœlenterata, in which the imperfect stomach, or wide tube, which is so called, empties into the body cavity, which latter is divided into a number of compartments by vertical partitions. The reproductive organs are internal. As in hydrozoa, the tissues are chiefly divided into two layers, an ectoderm and an endoderm, but there is more tendency to the formation of special organs, and in some of the members of the class muscular fibers are well developed. No vascular system has been found in any of the actinozoa, nor any traces of a nervous system except in ctenophora. Most of the actinozoa are permanently fixed. Sea-anemones have some locomotive power, and one order, ctenophora, above mentioned, consists of active, free-swimming organisms. Many of the class secrete a horny or calcareous skeleton called a *coral*, or *corallum*. The actinozoa are divided into four orders:

Order I. Zoantharia (Gr. *zoön*, animal, and *anthos*, a flower). In this order the soft parts are disposed in multiples of five or six, typically six, and they also have simple tentacles, usually numerous. The zoantharia are divided into three sub-orders:

Sub-order I. Zoantharia malacodermata. In these organisms there is either no corallum or a pseudocorallum in the form of adventitious spicules scattered through the soft parts. This sub-order comprises three families:

Family 1. *Actinidæ.* These are commonly known as sea-anemones. They have no corallum or only a pseudocorallum, and are seldom compound. They have locomotive power.

Family 2. *Illyanthidæ.* No corallum; polyps single and free, with rounded tapering base. The genus ilyanthus is in most respects identical with the ordinary *actinæ*, but the base of its conical body is much attenuated, and by separating allows of a free existence.

Family 3. *Zoanthidæ.* These organisms are in colonies, and exist in the form of a crust or of creeping roots, and have no power of locomotion.

Sub-order II. Zoantharia sclerobasica. These are the black corals, and are always composite, composed of a number of polypes united by a common, fleshy material, which is thin and internally supported by a simple or branched horny axis called a *sclerobase*. The polypes do not secrete a calcareous, but a horny corallum, and they generally have six simple tentacles. All the black corals form colonies, which are fixed to some foreign object.

*Sub-order III. Zoantharia, Scleroderma*ta, or *Madreporidæ.* The animals comprising this sub-order include most of the coral-producing zoöphytes of recent seas. See ZOANTHARIA.

Order II. Alyconaria. The asteroid polyps. Tentacles fringed; soft parts arranged in multiples of four instead of five or six, as in zoantharia. All the members of this order are composite, the whole colony forming a branched mass, with the exception of one genus, *haimeia.* Divided into five families: 1. alcyonidæ; 2. tubiporidæ; 3. pennatulidæ; 4. gorgonidæ; and 5. heliophoridæ; the fifth family being recently founded by Mr. Moseley. The alconyum, or "dead-men's toes," may be regarded as the type of the family alcyonidæ. The tubiporidæ contain the organ-pipe corals, the corallum being composed of bright scarlet cylinders united by plates. See CORAL, POLYPI, GORGONIA, ALCYONIUM, and PENNATULA.

Order III. Rugosa (Lat. *rugosus*, wrinkled). This order is extinct, and, excepting *holocystis elegans* of the cretaceous formation, their fossils do not occur in rocks later than the paleozoic, and therefore are known only by the characteristics of the corallum. The rugosa are divided into four families: 1. stauridæ; 2. cyathaxonidæ; 3. cyathophyllidæ; 4. cystiphyllidæ.

Order IV. Ctenophora (Gr. *kteis*, a comb, and *phero*, I carry). "Transparent, oceanic, gelatinous actinozoa, swimming by means of *ctenophores*, or parallel rows of cilia disposed in comb-like plates" (Greene). The order comprises five families: 1. calymmidæ; 2. cestidæ; 3. callianiridæ; 4. pleurobrachiadæ; 5. beroidæ. See BERÖE. The cestidæ have a flat, ribbon-shaped body at right angles to the direction of the digestive tract, and three or four feet long (Venus's girdle). The pleurobrachiadæ, the typical family, have a transparent, colorless, spherical, melon-shaped body, in which the two

poles of the spheroid are called *oral* and *apical*, the rest of the body constituting the interpolar region. There is a transverse mouth at the oral pole opening into a fusiform digestive cavity, in the lower part of which there are peculiar brown cells performing, it is supposed, the functions of a liver. The interpolar region, or body, is traversed by eight meridianal bands or *ctenophores*, elevated transversely into a number of ridges, each having a fringe of cilia, forming a comb-like plate. Besides these comb-like ridges, there are two long, tentacular processes, also fringed with curved cilia, forming singularly beautiful and interesting organs. See CTENOPHORE.

Sub-kingdom III. Echinodermata (Gr. *echinos*, hedgehog, and *derma*, skin; from having a spiny skin). The echinodermata, including the sea-urchins, star-fishes, etc., were formerly included in the sub-kingdom radiata, but they form a very distinct group, and although they have been classified by prof. Huxley, on account of some remarkable affinities with the lower worms, as the tape-worm and other intestinal parasites, in a sub-kingdom called annuloida, the weight of authority inclines to a separation into a distinct group, constituting a sub-kingdom. The echinodermata may be defined as follows: Simple marine organisms, the body of the adult more or less conspicuously radiate, that of the young often distinctly bilateral. Nervous system radiate, composed of an æsophageal ring and radiating branches. Sexes generally distinct, rarely united. They are commonly known as sea-urchins, star-fishes, brittle stars, feather-stars, sea-lilies, sea-cucumbers, etc. The echinodermata are divided into seven orders:

Order I. Crinoidea (Gr. *krinon*, a lily, and *eidos*, form). Sea-lilies; feather-star (q.v.); medusa-head crinoid; pentacrinus (q.v.); stone-lily—*encrinus liliiformis*. See ENCRINITES and CRINOIDEA.

Order II. Blastoidea (Gr. *blastos*, a bud, and *eidos*, form). These animals are all extinct, and their fossils are found in the paleozoic formations, chiefly in the carboniferous rocks. The body was fixed to the sea-bottom by a short, jointed pedicel, and in many respects resembled the following.

Order III. Cystoidea (Gr. *kystis*, a bladder). These organisms are also extinct, and their fossils are confined to the paleozoic age. The body was, in most instances, fixed to the sea-bottom by a short, jointed, calcareous pedicel, and was more or less spherical and covered with numerous polygonal, calcareous plates accurately fitted together. On the upper surface there were two, and sometimes three, apertures, the use of which is a matter of controversy. One was, probably, for the mouth, one for locomotion, and the third for voiding excreta.

Order IV. Ophiuroidea (Gr. *ophis*, a snake; *oura*, a tail; and *eidos*, form). Sand-stars —*ophiuria*; brittle stars—*ophiocoma*.

Order V. Asteroidea (star-formed). Star-fishes (q.v.); cross-fish—*uraster;* sun-star—*solaster;* cusion-star—*goniaster*.

Order VI. Echinoidea, sea-urchins, sea-eggs, heart-urchins. Sexes distinct. See ECHINUS.

Order VII. Holothuroidea, vermiform or slug-like echinoderms, with a leathery skin, in which calcareous granules and spicules are developed; mouth surrounded by a circlet of tentacles; larva vermiform, and without a skeleton; sexes usually distinct. The members of this order are commonly known as trepangs, sea-cucumbers, etc., and are the most highly organized of all the echinodermata. There is a long, convoluted intestine, and a special respiratory or water-vascular system is often developed in the form of arborescent tubes. At a certain period the young are barrel-shaped, having transverse rings of cilia, by means of which they rotate rapidly on their long axis, and have been at this stage of existence described as a distinct genus, under the name of *auricularia*. In the adult typical holothurians, locomotion is produced by means of rows of ambulacral tube-feet, or by alternate extension and contraction of the body, but in some members the animal moves by means of spicula distributed in the integument. See HOLOTHURIA.

The echinodermata began their existence in the lower Silurian formation, and their remains are found in most sedimentary rocks up to the present time. The cystoidea and blastoidea are extinct, and not more recent than paleozoic. Many crinoids are extinct, having their greatest development in paleozoic time. In the triassic formation is found the beautiful stone-lily. In the Jurassic occurs the pear-encrinite, and in the chalk the tortoise-encrinite. Fossils of asteroidea abound in both upper and lower. Silurian rocks, as paleogaster, a beautiful form (q.v.). Many rare and beautiful fossils abound in the oolite, as goniaster, plumaster, and uriaster. The ophiuroidea are rare fossils, the protaster Sedgwickii being an example, found in the silurian; but most of the members are more recent, many reaching to the present time. The echinoidea are represented in the paleozoic rocks by only one family, but numerous fossils are found in *mesozoic* and recent periods. The echinoids of the secondary and tertiary formations resemble present forms in not having more than twenty rows of calcareous plates.

SUB-KINGDOM IV. ANNULOSA (Lat. *annulus*, a ring). The members of this sub-kingdom have a body which is usually more or less elongated, and always bilaterally symmetrical instead of radiate. Usually the body is divided into segments, which may be definite or indefinite, arranged along an antero-posterior axis. Lateral appendages, when present, are symmetrically arranged. The nervous system consists of one or two

ganglia situated anteriorly, or of a double gangliated chain near the ventral surface. This kingdom is divided into three primary sections.

Section I. Scolecida (Gr. *scolex*, a worm), including parasitic worms, wheel-animalcules, etc., whose characteristics are an elongated, flattened body, which may have an annulated integument, but otherwise not at all or imperfectly segmented. There is a water-vascular system, but none for the circulation of an elaborated fluid. The nervous system consists of a few ganglionic masses, or a ring, from which proceed a few filaments, the principal feature which separates them from the ringed worms, or annelida, which have a ventral gangliated nerve chain. The section comprises two divisions, containing seven orders:

Division I. Platyelmia (Gr. *platus*, flat). The members of this division have a more or less flattened body, and no true segmentation. It includes two parasitic orders and one non-parasitic order.

Order I. Tænaida or *Cestoidea.* See Entozoa, Hydatid, and Tape-worm. The joints of the tape-worm are generative segments, which are thrown off by a process of gemmation, and are not true segments of the animal, which consists of the head.

Order II. Trematoda (Gr. *trema*, a hole). These organisms are known as suctorial worms. See Fluke, Hematozoa, Monostoma, and Trematoda.

Order III. Turbellaria (including *planaria* of Cuvier). See Planaria and Nemertes. These animals are nearly all aquatic and non-parasitic.

Division II. Nematelmia (q.v.). Scolecida, having an elongated and cylindrical body. Most of the division have an annulated integument, but there is no true segmentation, and rarely locomotive appendages. They are mostly unisexual, and are parasitic during the whole or a part of their existence. The division comprises three orders:

Order I. Acanthocephala, thorn-headed worms (Gr. *akantha*, thorn; *kephale*, head). These animals are entirely parasitic, vermiform, and have no mouth or alimentary canal. They have a proboscis armed with curved hooks. At the base of the proboscis there is a single ganglion of nerve matter giving off radiating filaments in all directions. It has been discovered that, as in the tænaida, the adult worm is developed within a hooked embryo. These *thorn-headed worms* are among the most formidable that infest the intestinal canal of vertebrates, particularly of birds and fishes.

Order II. Gordiacea, hair-worms. See Nematelmia. These are thread-like, parasitic organisms, which in their earlier stages inhabit the bodies of insects, such as beetles and grasshoppers. They have a mouth and alimentary canal. The sexes are distinct, and they quit their hosts in order to breed. They resemble hairs, and are often many times as long as the insects they infest. See Worms.

Order III. Nematoda or *Nematoidea* (q.v.). Most of these animals are internal parasites, inhabiting the intestinal canal, pulmonary tubes, or cellular tissues of man and other animals; but many are not parasitic. The best known are the *ascaris lumbricoides*, the round worm of the stomach and intestines (see Ascaris); the *oxyuris vermicularis*, or thread-worm (q.v.); *filiaria medinensis*, or Guinea-worm (q.v.); *trichina spiralis* (q.v.), vinegar eel. See Sclerostoma and Hematozoa.

Division III. Rotifera. Order *rotifera* (wheel animalcule, builder animalcule, flexible creeper). See Rotatoria. The position of this group is doubtful. It is placed here by Huxley, but it is sometimes placed among the lower orders of annulosa. These animals have a body composed of numerous segments or somites (Gr. *soma*, body), arranged along a longitudinal axis. They have a nervous system consisting of a double chain of ganglia running along the under surface of the body, with a collar of nervous matter around the gullet. The sub-kingdom is divided into two primary divisions: *arthropoda*, provided with articulated appendages; and *anarthropoda*, having no articulated appendages.

Section II. Anarthropoda. Locomotive appendages, when present, not distinctly articulated to the body (whence the name). This division contains the earth-worms, leeches, tube-worms, spoon-worms, etc. Divided into three classes:

Class I. Gephyra (*sipunculoidea*). Body sometimes annulated, sometimes not; no ambulacral tubes or foot-tubercles; sometimes bristles serving for locomotion. The sipunculus and its allies form this class. From certain affinities they have sometimes been placed among the echinodermata, but they do not secrete calcareous matter, and there is no radiate arrangement of the nervous system (see Sipunculus). The British species of this class are grouped by prof. E. Forbes as follows:

Family 1. *Sipunculacea*, having a retractile proboscis, around the extremity of which there is a circlet of tentacles.

Family 2. *Priapulacea*, having a retractile proboscis, but no tentacles.

Family 3. *Thalassamacea*, proboscis with a long, fleshy appendage; no oral tentacles.

Class II. Annelida. Included by Linnæus in his class *vermes*. See Annelida. The members of this class have distinct segments, each segment usually corresponding with a single pair of ganglia in the double ventral cord, all the segments being similar except those at the anterior and posterior extremities. Each segment may have a pair of lateral appendages, but they are never articulated with the body. There are four orders:

Order I. Hirudinea (*discophora*, or *suctorial leeches*). These animals are characterized by having a locomotive and adhesive sucker posteriorly, or at both extremities, and by

having no bristles or foot-tubercles. They are hermaphrodite, and the young undergo no metamorphosis. See LEECH.

Order II. Oligochæta (Gr. *oligos*, few; *chaite*, hair), earth-worms—*lumbricidæ;* water-worms—*naïdidæ;* and mud-worms—*limicolæ.* These have locomotive appendages in the form of bristles. See EARTH-WORM.

Order III. Tubicola (Lat. *tuba*, a tube). These annelides inhabit tubes, sometimes calcareous and secreted by the animals; sometimes composed of a glutinous secretion mixed with grains of sand, forming a cement. Sexes separate; young passing through a metamorphosis. There is a pseudo-hemal system, usually containing red blood, sometimes green. Respiratory organs in spiral, funnel-shaped tufts, or branchiæ. See TUBICOLÆ and SERPULA.

Order IV. Errantia (Lat. *erro*, I wander), *nereidea, dorsibranchiata.* Respiratory organs in the form of branchial tufts, arranged along the back and sides of the body. This order includes the sand-worms, sea-worms, and sea-mice. Body soft, integument having a great number of segments; head provided with eyes, and two or more feelers, which are not jointed like the antennæ of crustaceans; mouth on the under surface of the head, and having one or more pairs of horny, lateral-working jaws; stomach and intestine usually distinct, and lined with ciliated epithelium; perivisceral cavity filled with a colorless fluid containing corpuscles (Owen). The pseudo-hemal system consists of a dorsal and a ventral vessel connected by transverse branches. There are pulsating dilations at the base of the branchial tufts. The circulating fluid is usually red, but is yellow in some, as the sea-mouse (q.v.). On account of the position of the tufts the members of this order are sometimes called *dorsibranchiate,* or *notobranchiate.* The nervous system in errantia consists of a double, ventral cord, with two ganglia to each segment or somite. The cerebral ganglia, situated in front of the gullet, are large, and send filaments to the eyes and feelers. Among the errantia is the common lob-worm, often used by fishermen for bait. It lives in deep burrows formed in the sand on the sea-shore, the animal passing the sand through its body to get nourishment. There are thirteen pairs of branchiæ or gills, placed one of each pair on a side, in the middle portion of the body. In the nereidæ, or sea-centipedes, the head is distinct, and has eyes and feelers, the mouth having a large proboscis with horny jaws. In the eunicea the branchiæ are large, and the mouth has from seven to nine horny jaws. The eunice gigantea often has over 400 segments, and is sometimes more than 4 ft. long. Traces of errantia are found in the Cambrian rocks and other formations up to the present time, and the tubicola have left thin sheaths in all formations from the Silurian upwards. See LUG-WORM, LOB-WORM, NEREIS, and PALOLO.

CLASS III. CHÆTOGNATHA (Gr. *chaite*, bristle; *gnathos*, jaw) (Huxley), arrow-worms (*sagitta*). This class is constituted to receive the single genus *sagitta,* formerly classed among the annelides. See SAGITTÆ.

SECTION III. ARTHROPODA, or ARTICULATA (q.v.). The members of this division of the sub-kingdom annulosa possess jointed appendages, articulated to the segments of the body (whence the name). The following are the chief characteristics: The body is composed of a series of segments arranged along a longitudinal axis, more or less of the segments having articulated appendages, and both being protected by a horny, shell-like cuticle. The appendages are hollow, containing muscles. The nervous system is in the form of a double chain of ganglia, running along the ventral surface of the body, and united by commissures. The blood-circulatory system is placed near the back, and consists of a contractile cavity provided with valvular apertures. There is communication with a perivisceral cavity, and the system contains true corpusculated blood. Respiration is effected by the general surface of the body, by gills, by pulmonary sacs, or by tubular folds of the integument called *tracheæ.* The arthropoda are divided into four great classes, viz.: the *crustacea,* including the lobsters, crabs, etc.; the *arachnida,* including the spiders, scorpions, etc.; the *myriapoda* (centipedes and millipedes); and the *insecta,* or insects.

CLASS I. CRUSTACEA (Lat. *crusta,* a crust). Respiration effected by gills or by the general body surface. There are two pairs of antennæ. The locomotive appendages are more than eight, articulated to the segments of the thorax, and in most instances to those of the abdomen, the pairs generally being from five to seven. All these animals pass through a series of metamorphoses, and every embryonic organ or part is permanently represented in some member of a lower order. Authorities differ in the classification of the crustacea, but that adopted here divides them into four sub-classes, comprising sixteen orders.

SUB-CLASS I. EPIZOA (Gr. *epi*, upon, and *zoön*, animal). These animals are parasites in the adult state upon the bodies of fishes, but when young they are free-swimming, and have antennæ and eyes. This sub-class contains three orders:

Order I. Ichthyophthira (Gr. *ichthus*, a fish, and *phtheir*, a louse). These animals become attached to the skin, eyes, or gills of fishes by a suctorial mouth, or cephatic processes, or by a disk borne by the last pair of thoracic limbs, or by hooklets at the extremities of the first pair. The males are usually not attached, but adhere to the females, which are much larger. In attaining the adult condition they pass through retrograde metamorphosis. See LERNEADA.

Order II. Rhizocephala (Gr. *rhiza*, root, and *kephale*, head; root-headed). These

animals, like those of the preceding order, are free-swimming when young. The larvæ have ovate bodies, one eye, and a dorsal shield. In the second, or pupæ stage, they become inclosed in a bivalve shell and attach themselves to larger crustaceans. They then lose all their limbs, and appear like mere sacks. At the point of attachment they send tubular roots into the body of the host, winding round its intestines.

Order III. Cirripedia. Larvæ free-swimming, but a cement-like secretion from a gland is discharged through the antennæ by which they become permanently attached to rocks, wood, cetaceans, turtles, other crustaceans, and sometimes jelly-fishes. The more important members are the *acorn-shells* and the *barnacles.* See BALANUS, BARNACLES, and CIRRHOPODA. The cirripedia are divided into three sub-orders, *thoracica, abdominalia,* and *apoda.*

SUB-CLASS II. ENTOMOSTRACA (q.v.), divided into two great *legions* or divisions.

DIVISION A. LOPHYROPODA (Gr. *lophouras,* having stiff hairs). Possessing few branchia, and attached to the appendages of the mouth. Feet few, mainly locomotive. Mouth not suctorial, but has organs of mastication. There are two orders.

Order I. Ostracoda (Gr. *ostrakon,* a shell; *eidos,* form), water-fleas. Small animals inclosed in a shell composed of two valves united along the back by a membrane. The respiratory organs are attached to the posterior jaws, and there are only two or three pairs of feet. Most of them pass through several stages of metamorphosis. See CYPRIS.

Order II. Copepoda (Gr. *kope,* an oar, and *podes,* feet). These animals inhabit both salt and fresh water. Head and thorax covered by a shell, and furnished with five pairs of swimming feet, and generally two caudal locomotive appendages. One of the most common of the water-fleas is a member of this order, under the name of cyclops (q.v.). These oar-footed crustaceans are regarded by some zoologists as being the same in the larval state as *ichthyophira,* the latter animal becoming modified by being attached to, and existing upon, other animals.

DIVISION B. BRANCHIOPODA (q.v.). These animals have many branchiæ attached to the legs, which are numerous and formed for swimming. This division is made to include *cladocera, phyllopoda,* and *trilobita,* although the latter departs somewhat from the characteristics of the other members.

Order I. Cladocera (Gr. *klados,* a branch, and *keras,* a horn). Carapace or shell similar to ostracoda; feet, four to six pairs, usually bearing respiratory organs; two pairs of antennæ, one pair large, branched, and used for swimming. The *daphnia pulex,* or branched-horned water-flea, is inclosed within a bivalve shell which opens anteriorly. The head is not inclosed, and has a single eye. The gills are in the form of plates, attached to five pairs of thoracic legs. The animal is parthenogenetic (see PARTHENOGENESIS), and it produces two kinds of eggs. One kind, the summer eggs, are deposited between the valves of the carapace, and are hatched there; but the winter eggs are deposited in a receptacle on the back of the carapace, called the saddle, which after a time is cast off and floats about till the water becomes warm enough to hatch the eggs. See WATER-FLEA.

Order II. Phyllopoda (Gr. *phyllon,* a leaf), leaf-footed crustaceans. Carapace covering head and thorax, or the body entirely naked. Feet never less than eight pairs, leaf-formed and respiratory, and also used in swimming. They are interesting on account of their affinity to the extinct order of trilobites. The various species of the genus *branchippus* have no carapace, and exist in ponds and swamps in many parts of the world. The brine-shrimps (genus *artemia*) are found in the brine pans of salt-works, and in lakes much salter than the ocean. They abound in the Great Salt lake of Utah. See BRINE-SHRIMP.

Order III. Trilobita (three-lobed crustaceans). See TRILOBITES.

Order IV. Merostomata (Gr. *meron,* thigh, and *stoma,* mouth). Crustaceans, often of great size, in which the mouth is furnished with mandibles and maxillæ, whose terminations become walking or swimming feet and organs of prehension. Divided into two sub-orders, *xiphosura* and *eurypterida.*

Sub-order 1. *Xiphosura* (Gr. *xiphos,* a sword; *oura,* a tail). The only living representatives are the king-crabs (horse-shoe crabs), of which there are but few species. See KING-CRAB and MEROSTOMATA.

Sub-order 2. *Eurypterida* (Gr. *euros,* broad, and *pteron,* wing), extinct crustaceans, some of which reached gigantic dimensions. See MEROSTOMATA.

SUB-CLASS IV. MALACOSTRACA (Gr. *malakos,* soft, and *ostrakon,* shell. The name was used by Aristotle to designate the whole class *crustacea*). Crustaceans having generally a definite number of somites, seven belonging to the thorax, and seven to the abdomen, counting the telson, or last segment, or tail. There are two primary divisions.

DIVISION A. EDRIOPHTHALMATA (q.v.). Malacostraca in which the eyes are sessile (whence the name), and the body not protected by a carapace; eyes usually compound, but sometimes simple; as a rule, there are seven pairs of feet, for which reason Agassiz called the division *tetradecapoda.* There are three orders.

Order I. Læmodipoda (Gr. *laimos,* throat; *dis,* twice; *podes,* feet). First thoracic segment amalgamated with the head, the appendages of the segment appearing to be inserted into the throat (whence the name). Respiratory organs consist of vesicles,

attached to the thorax or bases of the legs; feet hooked; all marine. See WHALE-LOUSE.

Order II. Amphipoda (Gr. *amphi*, both; *podes*, feet). Resembles the preceding, but the first thoracic segment is not united to the head; seven pairs of thoracic limbs, some of them directed forwards and some of them backwards, from which fact the order derives its name. They are all small animals. See GAMMARUS and SAND-HOPPER.

Order III. Isopoda (q.v.). Respiratory organs in the form of branchiæ attached to the under surface of the abdomen. The young are developed within a larval membrane, which in time bursts, liberating them, but they then have only six instead of seven pairs of limbs, as in the adult state. The isopoda are divided by Milne-Edwards into three sections, which from their habits are called natatorial, sedentary, and cursorial. Some of the natatorial are parasites of fishes. All the sedentary are parasites of the gill-chambers or ventral surfaces of decapod crustacea. The cursorial, or running, are principally land animals, the better known being the wood-louse (q.v.). An aquatic genus is limnoria (q.v.). Other well-known isopods are the water-slaters, rock-slaters, shield-slaters, etc. See ASELLUS and WOOD-LOUSE.

DIVISION B. PODOPHTHALMATA. See PODOPHTHALMA. This division contains the shrimps, lobsters, and crabs, and is divided into two orders.

Order I. Stomopoda (q.v.). See SQUILLA, GLASS CRAB.

Order II. Decapoda (Gr. *deka*, ten; *podes*, feet). Branchiæ or respiratory organs contained in cavities at the sides of the thorax. Heart in the form of a quadrate sac, having three pairs of valvular openings. There are great differences in the mode of development. The decapoda are divided into three tribes, the macrura, anomura, and brachyura. See CRAB, CRUSTACEANS, HERMIT CRAB, PEA CRAB, PRAWN, PURSE CRAB, RIVER CRAB, and LAND CRAB.

CLASS II. ARACHNIDA (q.v.). This class resembles the crustacea in many essential characteristics, but there are marked differences. The respiratory organs are never in the form of branchiæ, but of pulmonary vesicles, or ramified tubes or tracheæ, in which they breathe air; there are never more than four pairs of locomotive limbs, and the abdominal sections never have limbs. The eyes are always sessile, while in the higher crustacea they are always borne upon movable peduncles, and both pairs of antennæ are developed. In the higher arachnida one of the two pairs of normal antennæ are never developed (Huxley). The arachnida comprise two great divisions, the *trachearia* and the *pulmonaria*.

DIVISION A. TRACHEARIA. Respiration cutaneous, or by tracheæ (q.v.). Eyes never more than four in number. The division comprises three orders.

Order I. Podosomata (Gr. *podes*, feet; *soma*, body). Included in arachnida by Cuvier, but placed by Milne-Edwards among the crustacea, on account of the metamorphoses which they undergo. Having, however, not more than four pairs of legs, they would seem more properly to belong to the arachnidia. Among the best known are nymphon and pycnogonum. See PYCNOGONIDÆ.

Order II. Acarina or *Monomerosomata* (Gr. *akari*, a mite). Abdomen unsegmented and united with thorax and head into one mass. Respiration by tracheæ; most of the order are parasites. Usually divided into three families, of which the third, *acarida*, includes the mites and ticks (q.v.). See ACARUS and ACARUS FOLLICULORUM.

Order III. Adelarthrosomata (Gr. *adelos*, hidden; *arthros*, joint; *soma*, body). Abdomen composed of segments, but all three parts of the animal united in one mass. Respiration by tracheæ, opening on the ventral surface of the body. The order comprises three families: 1. *Phalangidæ* (q.v.), harvest spiders; 2. *Pseudoscorpionidæ* (q.v.), book scorpion; 3. *Solpugidæ*. In this family the abdomen is in distinct segments, and separated from the thorax.

DIVISION B. PULMONARIA. Higher *arachnida*, as scorpions and spiders. Respiration performed by pulmonary sacs, sometimes aided by tracheæ; six or more eyes; abdomen usually distinct from cephalothorax; divided into two orders.

Order I. Pedipalpi (Lat. *pes*, *pedis*, a foot; and *palpo*, to feel). Scorpions (q.v.) and other animals intermediate between scorpions and true spiders. In this order the abdomen is distinctly segmented, but there is no well-marked division between it and the cephalothorax. *Family* 1. *Scorpionidæ;* see SCORPION. *Family* 2. *Thelyphonidæ*, resemble true spiders externally, but are distinguished from them by having a segmented abdomen and no spinnerets, and from the scorpionidæ by the extremity of the abdomen having no sting.

Order II. Araneida. Characterized by the fusion of the head and thorax into one mass, and by an unsegmented abdomen, which is usually soft and joined to the rest of the body by a constricted peduncle. See SPIDER, TARANTULA, and MYGALE.

CLASS III. MYRIAPODA (q.v.). Divided into three orders.

Order I. Chilopoda (Gr. *cheilos*, lip; *podes*, feet; foot-lipped). Centipedes and their allies. See CENTIPEDE.

Order II. Chilognatha (Gr. *cheilos*, lip; *gnathos*, jaw). See MILLIPEDE.

Order III. Pauropoda. This order consists of one peculiar millipede, described by sir John Lubbock under the name *pauropus*. The body is only one-twentieth of an inch long, consisting of ten segments. Found among decaying leaves in damp places,

in England and America. Fossil myriapoda; the oldest fossil myriapoda are in the carboniferous formation, where several species of millipedes have been found.

Order IV. Onychophora. In the West Indies, South Africa, South America, and New Zealand, there are peculiar animals of a genus called *peripatus*, which has been classed with leeches, tape-worms, and myriopoda. Their habits are terrestrial, living in decayed wood, under stones, and in moist earth. They have a cylindrical worm-like body, annulated and provided with many pairs of jointed feet, terminated with hooked claws or bristles. The respiratory organs, as recently shown by Moseley, are in the form of tracheæ, which open by numerous apertures.

Class IV. Insecta. Those articulate animals (articulata or arthropoda) which have the head, thorax, and abdomen distinct; three pairs of legs on the thorax, none on the abdomen; a single pair of antennæ; eyes generally compound; usually two pairs of wings on the thorax; respiration by tracheæ. See Insects and Larva. According as insects attain the adult state without passing through a partial or a complete metamorphosis, they may be arranged in three grand divisions: *Ametabola* (without change), *Hemimetabola* (half change), and *Holometabola* (whole change). It will answer the purpose here to simply arrange them into twelve orders, every one of which will naturally fall under one of the above divisions. The ametabola have been called *apterous insects* (q.v.).

Order I. Anoplura (Gr. *anoplos*, unarmed; *oura*, tail). Apterous insects (q.v.) in which the young pass through no metamorphosis; mostly parasitic, on man and other animals (lice, pediculi). Mouth suctorial; body flattened; legs short, with claws; reproduction rapid. See Louse.

Order II. Mallophaga (Gr. *mallos*, a fleece, and *phago*, I eat). Aptera, in which the mouth is formed for biting, and furnished with mandibles and maxillæ. They resemble the pediculi, except as to mouth, not sucking the juices of their hosts, but living upon their integuments (bird lice).

Order III. Collembola. Minute aptera having a partial masticatory or suctorial mouth, and the first abdominal segment furnished with a suctorial tube, and next the last abdominal segment with peculiar leaping appendages. This order has been established by sir John Lubbock for the reception of those insects called "spring-tails." Their scientific name, collembola, is given because they attach themselves to foreign bodies by means of their ventral suctorial tube. See Podura.

Order IV. Thysanura (Gr. *thysanoi*, fringes; *oura*, tail). Aptera generally having a masticatory mouth, and the extremity of the abdomen furnished with long, bristle-like appendages for locomotion, not springing. See Lepisma.

Order V. Hemiptera (q.v.). Plant lice, cochineal insect. See Aphis, Hop Fly, Froth Fly, Coccus, Cochineal, Coffee Bug, Cicada, Lantern Fly, Phylloxera, Harvest Bug, Harvest Fly, and Water Bug.

Order VI. Orthoptera (q.v.). Grasshoppers, locusts, etc. See Cockroach, Cricket, Mole Cricket, Mantis, Gryllus, Earwig, Phasmidæ, Walking Stick, and Locusts and Grasshoppers.

Order VII. Neuroptera (q.v.). Wings four, all membranous, and nearly equal in size; lace-like in appearance; metamorphosis rarely complete; larvæ six-legged. See May Fly, Ephemera, Dragon Fly, Ant Lion, Caddis Fly, Golden Eye-Fly, Stone Fly, and Termites.

Order VIII. Aphaniptera (Gr. *aphanos*, showing but little). Wings rudimentary, in the form of plates; mouth suctorial; metamorphosis complete. See Flea and Chigoe.

Order IX. Diptera (q.v.). See also Muscidæ, Bot, Tabinidæ, Crane Fly, Cecidomyia, Hessian Fly, Horse Fly, House Fly, Forest Fly, Cheese Hopper, Œstridæ, Maggot, Sheep Louse, Turnip Fly, and Wheat Fly. This order comprises what are commonly known as flies.

Order X. Lepidoptera (q.v.). Butterflies and moths (q.v.). See Caterpillar, Cabbage Moth, Cabbage Butterfly, Codlin Moth, Corn Moth, Clothes Moth, Death's-Head Moth, Ghost Moth, Goat Moth, Grass Moth, Hawk Moth, Pea Maggot, Plumed Moth, Winter Moth, and Tinidæ.

Order XI. Hymenoptera (q.v.). Wings four, membranous, with few nervures; wings sometimes absent; mouth always having maxillæ, which sometimes aid in forming a suctorial mouth. The order is very extensive. See Ant, Bee, Hornet, Wasp, Humble Bee, Carpenter Bee, Gall Fly, Ichneumon, Saw Flies, and Sphegidæ.

Order XII. Strepsiptera (q.v.). These animals are minute parasites on bees, etc. The female is a soft grub without feet, but with a horny head, which it protrudes from between the abdominal segments of its host. The males are winged and active. The larvæ are active, and have six feet.

Order XIII. Coleoptera (q.v.). Mouth having an upper lip, two mandibles, two maxillæ, and maxillary palpi; a movable lower lip with two jointed labial palpi. The larvæ usually have thirteen segments, including the head. This order comprises the beetles. See Cantharis, Chafer, Cockchafer, Pine Chafer, Bark Beetle, Click Beetle, Blaps, Darkling Beetle, Cocoanut Beetle, Goliah Beetle, Golden Beetle, Hercules Beetle, Pea Beetle, Rose Beetle, Rove Beetle, Stag Beetle, Death Watch, Clover Weevil, Pea Weevil, Weevil, Meal Worm, Dysticus, Lamelli-

CORNES, HOP FLEA, FIREFLY, GLOWWORM, ELATER, MYLABRIS, TURNIP FLY, SCARABÆIDÆ, SCARABÆUS, WINE WORM, and XYLOPHAGA.

SUB-KINGDOM MOLLUSCA (Lat. *mollis*, soft). Soft-bodied animals, usually having a shell or exo-skeleton, and commonly known as shell-fish. The blood-circulating system is placed near the back, the nervous system near the ventral surface, the alimentary canal lying mostly between the two. When well developed, the nervous system consists of three principal nervous masses or ganglia. There is usually, but not always, a heart, or blood-propelling organ. The digestive system consists of a mouth, œsophagus or gullet, stomach and intestine and excretory orifice, though in some the latter organ is absent. The mouth in some is furnished with ciliated tentacles, as in polyzoa; in others with two ciliated arms, as in brachiopoda. In the bivalves, or *lamellibranchiata*, the mouth has four membranous palpi; sometimes it has a complicated system of teeth, as in *gasteropoda* and *pteropoda*. Generally there are salivary glands, and the liver is well developed, pouring the bile into the stomach or commencement of the gut. In the mollusca proper, kidneys have also been found. Blood colorless or very slightly tinged. In polyzoa the circulation is effected by the motion of cilia. In *tunicata* the heart is tube-like, and propels the blood periodically in either direction. In the higher orders there is always a distinct heart, which is systemic, consisting of an auricle and a ventricle. See MOLLUSCA. This sub-kingdom includes two great divisions called *molluscoida* and *mollusca proper*, both comprising seven principal classes.

DIVISION A. MOLLUSCOIDA. Nervous system consists of only one ganglion, or a pair with accessory ganglia; heart imperfect or absent. Divided into three classes: Polyzoa, tunicata, and brachiopoda.

CLASS I. POLYZOA (q.v.). See also PLUMATELLA.

CLASS II. TUNICATA (q.v.). See also ASCIDIA, PYROSOMIDÆ, and SALPA.

CLASS III. BRACHIOPODA (q.v.). Body protected by a bivalve shell lined by an integument or *mantle*. Mouth furnished with spirally coiled processes or *arms*. Ventral valve usually the larger of the two. All marine; commonly known as lamp-shells. See LAMP-SHELL. This class is divided into ten families.

Family 1. *Terebratulidæ* (Lat. *terebro*, to bore). See TEREBRATULA. Most of these mollusks commenced their existence in the paleozoic rocks, and have survived to the present time, but some are extinct.

Family 2. *Thecidiдæ* (Gr. *theke*, a sheath). These animals are attached to some object at the sea-bottom by the beak of the ventral, or larger valve. All the known species are included in the single genus thecidium, which commenced in the upper trias, and there is only one species which is not exclusively fossil.

Family 3. *Spiriferidæ*. See SPIRIFERS. These animals had a curiously constructed shell, and their remains are very interesting. They range from the Silurian to the Permian formations, and none have been found later than the lias.

Family 4. *Koninckinidæ*. The only genus known, *koninckina*, is represented by a single species, *K. leonhardi*, of the trias of St. Cassian.

Family 5. *Rhynchonellidæ* (Gr. *rhynchos*, a beak). Commencing in the lower silurian, one genus only remaining, *rhynchonella* (q.v.). The pentamerus (q.v.), an interesting fossil, ranges from the lower silurian to the carboniferous inclusive.

Family 6. *Strophomenidæ*. All exclusively paleozoic. Principal genera: *orthis*, *orthisina*, *Davidsonia*, *strophomena*, and *leptæna*. See ORTHIS. The typical species of *orthisina* are silurian; but according to Davidson the genus ranges through the Devonian and carboniferous formations into the Permian.

Family 7. *Productidæ*. Shell attached to submarine objects by the beak or by means of spines borne by the ventral valve. Genus *chonetes*, found in silurian, Devonian, and carboniferous formations. *Producta* in Devonian to Permian.

Family 8. *Craniadæ*. This family contains only one genus, *crania*, which is found in the silurian and in all formations to the present time. The fossils are very beautiful and interesting.

Family 9. *Discinidæ*. Range from silurian to present time. A description of these interesting fossils may be found in the *Paleontology of New York*, by James Hall, and in Dana's *Manual of Geology*.

Family 10. *Lingulidæ* (Lat. *lingula*, a little tongue). Range from Cambrian period to the present time. Animal fixed by a muscular peduncle passing out between the beaks of the valves. Shell of horny texture, containing phosphorus in its composition. The genus obolus, a beautiful fossil, is confined to the silurian rocks. The present representative is *lingula* (q.v.).

DIVISION B. MOLLUSCA PROPER. Those members of the sub-kingdom mollusca which have three principal pairs of ganglia, distributed irregularly in position, and a heart which never has less than two chambers. They are naturally disposed into two groups—the *Acephala*, which have no distinct head, as the oyster and other *lamellibranchiata;* and the *Encephala*, in which there is a distinct head, as in the *gasteropods*, *pteropods*, and *cephalopods*. These three latter groups or classes have complicated arrangements of teeth upon the tongue, for which reason they have been given by Huxley the general name *odontophora*. The division acephala contains only one class.

CLASS I. LAMELLIBRANCHIATA (q.v.), (Lat. *lamella*, a plate; Gr. *branchia*, gills), called

by Lamarck *chonchifera*. These animals have no distinct head; body protected by a bivalve shell, as in the brachiopods, but the shells differ as much as the animals. In the brachiopods one shell is generally considerably larger than the other, while in the lamellibranchiates the two shells are generally of equal size. Again, in the brachiopods either one of the shells is symmetrical, or equilateral; that is, a line may divide it into two equal and relatively similar halves, while the valve of a lamellibranchiate is never quite equilateral. See SHELL. The respiratory organs are two lamelliform gills on each side of the body, whence the name of the class. Sometimes there is only one gill on each side. These gills, or plates, or branchiæ, are composed of tubular rods and a network of capillary vessels. Externally they are furnished with vibratory cilia for the circulation of water over the surface. In some the margins of the mantle (the integumentary covering in all mollusca, and which secretes the shell, see MOLLUSCA) are united to form a closed branchial or respiratory chamber into which water is admitted and expelled by tubes called siphons. In others the margins of the mantle are free. The valves of the shell are brought together by one or two muscles, called *adductors*. Those having but one are called *monomyaria*, those having two, *dimyaria*. Their habits are various; some lie on the bottom, as the oyster and scallop; others are fixed to objects, as mussels; others are sunk several inches deep in the sand on the sea-shore; others bore holes in rocks or wood, while many are free and locomotive. The lamellibranchiates are divided into two sections, with respect to the respiratory organs; those having the margins of the mantle free, without siphons, are with two exceptions called *asiphonida*, the other *siphonida*. Both sections comprise 21 families.

SECTION A. ASIPHONIDA.

Family 1. *Ostreidæ*. Shell inequivalve and slightly inequilateral; a single adductor; mantle margins not united; *ostrea*, *recten*. See OYSTER and SCALLOP.

Family 2. *Aviculidæ*. Mantle margins free. See PEARL OYSTER, PINNA, and MALLEACEÆ.

Family 3. *Mytilidæ*. Shell equivalve, mantle lobes united between the siphonal openings. One genus is *dreissena* (q.v.).

Family 4. *Arcadæ*. Shell equivalve; mantle margins separated. See ARCA.

Family 5. *Trigonidæ*. Shell equivalve, trigonal; mantle margin free. See TRIGONIA.

Family 6. *Unionidæ*. Shell usually equivalve; mantle margins united between siphonal openings. See FRESH-WATER MUSSEL.

SECTION B. SIPHONIDA.

Family 7. *Chamidæ*. Shell inequivalve; adductor impressions large; mantle margins united; siphonal orifices small. See CHAMA.

Family 8. *Hippuritidæ*. Shell inequivalve, unsymmetrical, thick. See HIPPURITES and RADIOLITES.

Family 9. *Tridacnidæ* (q.v.). Shell equivalve, large, and very beautiful; mantle margins extensively united; siphonal orifices surrounded by a thickened border. See CLAM, BEAR'S PAW.

Family 10. *Cardiadæ*. Shell equivalve, heart-shaped, with radiating ribs; mantle open in front; siphons usually short. See COCKLE.

Family 11. *Lucinidæ*. Fossils mostly found in secondary, tertiary, and recent formations, but some are Devonian and carboniferous. See LUCINA.

Family 12. *Cycladidæ*. Shell sub-orbicular; mantle open in front; a single siphon, or two more or less united. *Cyclas* and *cyrena* are the two most important members, and date from the commencement of the cretaceous period to present time. They inhabit fresh water.

Family 13. *Cyprinidæ*. (There is also a genus of fishes of this name.) Shell equivalved; mantle margins united behind by a curtain. The animals comprising this group are represented by Cyprina and Astarte. The latter has sometimes been assigned to the rank of a distinct family, Astartidæ. See ASTARTE.

Family 14. *Veneridæ* (q.v.).

Family 15. *Mactridæ*. See MACTRA.

Family 16. *Tellinidæ* (q.v.).

Family 17. *Solenidæ*. See SOLEN.

Family 18. *Myacidæ*. The more important genera are *mya*, *thetis*, and *panopæra* (q.v.).

Family 19. *Anatinidæ*. Mantles more or less united; siphons long, more or less united. This family has considerable paleontological importance, numerous in paleozoic, and reaching a great development in secondary formations.

Family 20. *Gastrochænidæ*. Mantle margins thick in front; siphons long and united; burrowing in mud, and predaceous upon oysters and other mollusks, burrowing holes through their shells. Range from oolite to the present time. See ASPERGILLUM, GASTROCHÆNA, and CLAVAGELLA.

Family 21. *Pholadidæ*. Many fossil species are found in Jurassic rocks. The living genus, *xylophaga*, includes the teredo (q.v.). See PHOLAS.

Encephalic division of mollusca, or *cephalophora*.

CLASS II. GASTEROPODA (q.v.). These animals never inhabit a bivalve shell. Many are naked, but the majority are provided with a univalve, sometimes with a multivalve shell. The gasteropods are divided into two primary sections, *pulmonifera* and *branchi-*

fera, according as their respiratory organs are formed for breathing in free air or in water.

SECTION A. BRANCHIFERA. In this section the respiration is aquatic, by walls of the mantle cavity, or by gills. Divided into three orders.

Order I. Prosobranchiata (*Pectinibranchiata*). Branchiæ pectinated or plume-like and situated in advance of the heart, whence the name.

Section 1. *Siphonostomata* (q.v.). Margin of shell notched or produced into a canal. Comprises six families.

Family 1. *Strombidæ* (q.v.).

Family 2. *Muricidæ.* See MUREX, PURPLE COLORS, and FUSUS.

Family 3. *Buccinidæ.* See PURPURA, HELMET SHELL, and WHELK.

Family 4. *Conidæ.* See CONE SHELL.

Family 5. *Volutidæ* (q.v.).

Family 6. *Cypræidæ.* See COWRY.

Section 2. *Holostomata.* Margin of shell seldom notched or produced into a canal.

Family 7. *Naticidæ.*

Family 8. *Pyramidellidæ.* See CHEMNITZIA.

Family 9. *Cerithiadæ.*

Family 10. *Melaniadæ.*

Family 11. *Turretellidæ* (q.v.).

Family 12. *Littorinidæ,* periwinkle (q.v.).

Family 13. *Paludinidæ,* river snails, ampullaria, and paludina, the latter well known.

Family 14. *Neritidæ.* Globose shell; long slender tentacles; mostly marine, and belonging to the tropics; one British species.

Family 15. *Turbinidæ* (q.v.). Top shells. See PHEASANT SHELL and TROCHIDÆ.

Family 16. *Haloitidæ,* ear-shells (q.v.). Shell spiral, ear-shaped. See HALIOTIS and IANTHINA.

Family 17. *Fissurellidæ* (q.v.).

Family 18. *Calyptræidæ.* See CALYPTRÆA.

Family 19. *Patellidæ.* See LIMPET.

Family 20. *Dentalidæ.* See DANTALIUM.

Family 21. *Chitonidæ.* See CHITON.

Order II. Opisthobranchiata. Branchiæ placed toward the rear of the body, whence the name.

Section 1. *Tectibranchiata.* Branchiæ covered by a shell or mantle, a shell in most; sexes united.

Family 1. *Tornatellidæ.* Cretaceous, principally.

Family 2. *Bullidæ.* Bubble shells. See BULLA.

Family 3. *Aplysiadæ.* Shell absent or rudimentary, and concealed by the mantle; animal slug-like (aplysia).

Family 4. *Pleurobranchidæ.* Shell covers only the back of the animal. That of one species is known as the Chinese umbrella.

Family 5. *Phyllidiadæ.* Shell absent.

Section 2. *Nudibranchiata* (q.v.). Animals destitute of a shell in the adult condition. Branchiæ external, on the back or sides of the body.

Family 6. *Doridæ.* Sea lemons. See DORIS.

Family 7. *Tritoniadæ.* Nearly allied to the preceding.

Family 8. *Æolidæ.* See GLAUCUS.

Family 9. *Phyllirhoidæ.*

Family 10. *Elysiadæ,* elysia, actœonia.

Order III. Nucleobranchiata (q.v.) or *Heteropoda.* Shell present or absent; animal free swimming, in the open sea, with a fin-like tail or flattened ventral fin.

Family 1. *Firolidæ.* See FIROLA and CARINARIA.

Family 2. *Atlantidæ.* See BELLEROPHON.

SECTION B. PULMONIFERA. See PULMONATA. Respiration aërial, by means of a pulmonary chamber.

DIVISION I. INOPERCULATA. Shell having no operculum.

Family 1. *Helicidæ.* See BULIMUS.

Family 2. *Limacidæ.* See SLUG.

Family 3. *Oncidiadæ.* Shell absent; animal slug-like.

Family 4. *Limnæidæ.* See LIMNÆA.

Family 5. *Auriculidæ.* See AURICULA.

DIVISION II. OPERCULATA. Shell having an operculum.

Family 6. *Cyclostomidæ.* Shell spiral; aperture nearly circular. All these animals are terrestrial, beginning in eocene.

Family 7. *Aciculidæ.* Shell elongated, cylindrical.

CLASS III. PTEROPODA (q.v.). Open sea animals, swimming by means of wing-like appendages on each side of the neck. There is usually a symmetrical, glassy shell, muscular stomach, and well-developed liver. The heart has an auricle and a ventricle. Nervous system composed mainly of one ganglion below the gullet, with branches. Sexes united, young passing through a metamorphosis. Divided into two orders.

Order I. Thecosomata (Gr. *theke*, sheath, and *soma*, body). Having an external shell: respiratory organs contained in a cavity in the mantle.

Family 1. *Hyaleidæ.* See HYALEA.

Family 2. *Limacinidæ.* Shells minute, spiral; *spiralis.*

Order II. Gymnosomata (q.v.), (Gr. *gymnos*, naked; *soma*, body). See CLIO.

CLASS IV. CEPHALOPODA (q.v.). Divided into two distinct and well-marked orders.

Order I. Dibranchiata. Having two branchiæ and an ink-bag; comprising two sections, Octopoda and Decapoda.

Section A. Octopoda. Having not more than eight arms, which are provided with sessile suckers.

Family 1. *Argonautidæ.* See ARGONAUT.

Family 2. *Octopodidæ.* See POULPE.

Section B. Decapoda (Gr. *deka*, ten; *podes*, feet). Arms eight, with two clavated tentacles, making ten; suckers pedunculated.

Family 3. *Tenthidæ.* See HOOK SQUID.

Family 4. *Belemnitidæ.* See BELEMNITES.

Family 5. *Sepaidæ.* See CUTTLE-FISH.

Family 6. *Spirulidæ.*

Order II. Tetrabranchiata (q.v.). Having four branchiæ (whence the name); no ink-bag; more than ten arms, and these without suckers.

Family 1. *Nautilidæ.* See NAUTILUS.

Family 2. *Ammonitidæ.* See AMMONITES, CERATITES, and BACULITES.

INVESTITURE (Lat. *in*, and *vestio*, to clothe), in feudal and ecclesiastical history, means the act of giving corporal possession of a manor, office, or benefice, accompanied by a certain ceremonial, such as the delivery of a branch, a banner, or an instrument of office, more or less designed to signify the power or authority which it is supposed to convey. The contest about ecclesiastical investitures is so interwoven with the whole course of mediæval history, that a brief account of its origin and nature is indispensable to a right understanding of many of the most important events of that period. The system of feudal tenure had become so universal that it affected even the land held by ecclesiastics, and attached to most of the higher ecclesiastical dignities, monastic as well as secular. Accordingly, ecclesiastics who, in virtue of the ecclesiastical office which they held, came into possession of the lands attached to such offices, began to be regarded as becoming by the very fact feudatory to the suzerain of these lands; and, as a not unnatural result, the suzerains thought themselves entitled to claim, in reference to these personages, the same rights which they enjoyed over the other feudatories of their domains. Among these rights was that of granting solemn investiture. Now, in the case of bishops, abbots, and other church dignitaries, the form of investiture consisted in the delivery of a pastoral staff or crosier, and the placing a ring upon the finger; and as these badges of office were emblematic—the one of the spiritual care of souls, the other of the espousals, as it were, between the pastor and his church or monastery—the assumption of this right by the lay suzerains became a subject of constant and angry complaint on the part of the church. On the part of the suzerains it was replied that they did not claim to grant by this rite the spiritual powers of the office, their function being solely to grant possession of its temporalities, and of the temporal rank thereto annexed. But the church-party urged that the ceremonial in itself involved the granting of spiritual powers; insomuch that in order to prevent the clergy from electing to a see when vacant, it was the practice of the emperors to take possession of the crosier and ring, until it should be their own pleasure to grant investiture to their favorites. The disfavor in which the practice had long been held found its most energetic expression in the person of Gregory VII., who having, in the year 1074, enacted most stringent measures for the repression of simony, proceeded, in 1075, to condemn, under excommunication, the practice of investiture, as almost necessarily connected with simony, or leading to it. This prohibition, however, as is observed by Mosheim (ii. 326), only regarded investiture in the objectionable form in which it was then practiced, or investiture of whatever form, when the office had been obtained simoniacally. But a pope of the same century, Urban II., went further, and (1095) absolutely and entirely forbade, not alone lay investiture, but the taking of an oath of fealty to a lay suzerain by an ecclesiastic, even though holding under him by the ordinary feudal tenure. The contest continued during the most of the 11th century. In the beginning of the 12th c., it assumed a new form, the pope, Paschal II., having actually agreed to surrender all the possessions and royalties with which the church had been endowed, and which alone formed the pretext of the claim to investiture on the part of the emperor, on condition of the emperor (Henry V.) giving up that claim to investiture. This treaty, however, never had any practical effect; nor was the contest finally adjusted until the celebrated concordat of Worms in 1122, in which the emperor agreed to give up the form of investiture *with the ring and pastoral staff*, to grant to the clergy the right of free elections, and to restore all the possessions of the church of Rome which had been seized either by himself or by his father; while the pope, on his part, consented that the elections should be held in the presence of the emperor or his official, but with a right of appeal to the provincial synod; that investiture might be given by the empe-

ror, but only *by the touch of the scepter;* and that the bishops and other church dignitaries should faithfully discharge all the feudal duties which belonged to their principality.

Such was the compact entered into between the contending parties, and for a time it had considerable effect in restraining one class of abuses; but it went only a little way towards eradicating the real evil of simony and corrupt promotion of unworthy candidates for church dignities. Still the principle upon which the opposition to investiture was founded was almost a necessary part of the mediæval system, and Mosheim (ii. 327) regards it as "perfectly accordant with the religious principles of the age." It was, in fact, but one of the many forms in which the spirit of churchmanship has arrayed itself, whether in ancient or modern times, against what are called the Erastian tendencies which never fail to develop themselves under the shadow of a state church, no matter what may be its creed or its constitution.

INVESTITURE, the term used in Scotch law to denote the giving feudal possession of heritable property. It was formerly given to the vassal in presence of the *pares curiæ,* but latterly has been superseded by infeftment or sasine, and now it is effected by mere registration of the deed of conveyance.

INVOCATION OF ANGELS AND SAINTS, the act of addressing prayers to the blessed spirits who are with God, whether the angels or the souls of the just who have been admitted to the happiness of heaven. The practice of addressing prayers to angels, especially to the angel-guardian, to the Virgin Mary, and to other saints, prevails in the Roman, the Greek, the Russo-Greek, and the eastern churches of all the various rites. In the Christian religion, the principle of the unity of God excludes all idea of subordinate sharers of the divine nature, such as is to be found in paganism, and all alike, Roman Catholics as well as Protestants, agree that its very first principles exclude the idea of rendering divine worship, no matter how it may be modified, to any other than the One Infinite Being. But while Protestants carry this principle so far as to exclude every species of religious worship and every form of invocation addressed to angels or saints, as trenching upon God's honor, and irreconcilable with the Scriptures, which hold him forth as the sole object of worship and the only fountain of mercy, the Roman Catholic religion permits and sanctions a worship (called *douleia*) of the saints, inferior to the supreme worship (*latreia*) offered to God, and an invocation of the saints, not for the purpose of obtaining mercy or grace from themselves directly, but in order to ask their prayers or intercession with God on our behalf. For this doctrine and the analogous practice, they do not advance the direct authority of Scripture (except a few passages which seem to them to imply the intercommunion of the two worlds, as Matt. xiii. 3, Luke xiv. 17, Exod. xxxii. 13), but rely on what to them is equally decisive testimony, viz., the unwritten word of God conveyed by tradition. Origen (Opp. ii. p. 273) speaks of the belief that "the saints assist us by their prayers" as a doctrine which is "doubted by no one." St. Cyprian, addressing the confessors going to martyrdom, engages by anticipation their prayers in his behalf when they shall have received their heavenly crown (Ep. 60, Dodwell's edition). To the same effect are cited the testimonies of Basil (Opp. ii. 155), Gregory Nazianzen (Opp. i. 288), Gregory of Nyssa (ii. 1017), Ambrose (ii. 200), Chrysostom (iv. 449), and many other fathers, as well as the liturgies of the various ancient churches, whether of the Roman, the Greek, the Syrian, or the Egyptian rite.

On the other hand, Protestant historians, even admitting the full force of these testimonies to the existence of the practice, allege that the practice is an early but unscriptural addition, dating only from the infusion into the church system of Alexandrian neoplatonism and oriental magianism, which they believe to have left traces even in the so-called orthodox Christianity of the 4th and 5th centuries. But leaving aside the doctrinal controversy, the fact at least is certain that in the 4th, and still more in the 5th and following centuries, the usage was universal; and a curious evidence of its prevalence is furnished by the fact that the very excess to which it was carried was condemned as a heresy (that of the Collyridians) by those who themselves confessed the lawfulness of the practice when confined within its legitimate limits. That similar excesses in the practice and similar abuses as to the nature and limits of the legitimate invocation of the saints continued through the mediæval period, Roman Catholics themselves admit, although they allege that such abuses were at all times reprobated by the authentic teaching of the church; and the multiplied devotions to the saints, especially to the Blessed Virgin, the efficacy claimed for them, and the extraordinary legends connected with them, and the prominence which the worship had assumed in the church, were among the most fertile themes of invective with the first reformers. The council of Trent (25th Sess., *On the Invocation of Saints*) defines very precisely what is the doctrine of the Catholic church on this subject. It declares "that the saints who reign with God offer up their prayers to God for men; that it is good and useful suppliantly to invoke them, and to resort to their prayers, aid, and help, for the purpose of obtaining benefits of God through his Son Jesus Christ our Lord, who alone is our Redeemer and Savior." From this decree it is inferred that the Catholic doctrine on the saints does not prescribe the practice of invoking them as necessary or essential, but only as "good and useful," and that what is to be asked of them is not the direct bestowal of grace and mercy, as from themselves, but only their prayers, their assistance, and their

help in obtaining benefits from God; and although many forms of prayer which are in use among Catholics bear, especially to a Protestant reader, all the appearance of direct appeals to the saints themselves for the benefits which are implored, yet all Catholic authorities are unanimous in declaring that these forms of words are to be interpreted, and that, from habitual use, they are so interpreted, even by the most superficially instructed Catholics, with the understood explanation that all the power of the saints to assist us consists exclusively in their prayers for us, and seconding our prayers by their own. See Bellarmine, *Controversiæ de Sanctorum Beatitudine*, lib. i. cap. xvii.

Protestants object to the invocation of saints and of angels, that it is without evidence of divine authority, contrary to the whole tenor of Scripture, and derogatory to the mediatorship of Christ. They ask what reason can be adduced for believing that prayers addressed to saints are even *heard* by them, or that they have always a knowledge of the worship addressed to them? They further deny that the prayers addressed to saints—and particularly to the Virgin Mary—are always capable of explanation as merely an asking of their prayers on behalf of those who invoke them, and quote many instances in proof.

INVOICE, a list or account of merchandise or goods sold, either sent along with the goods themselves or separately.

INVOLU'CRE (Lat. a wrapper or envelope), in botany, is a group of bracts surrounding flowers in their unexpanded state, and occupying a place on the floral axis beneath them after their expansion. The bracts which form an involucre are generally grouped in a whorl. In umbelliferous flowers, there is very commonly an involucre, not only to the umbel, but to each division of the umbel, or *umbellule*. The former is called the *general involucre*, or simply the *involucre;* the latter are *partial involucres*, or *involucels*. The cup of the acorn, hazel, chestnut, etc., may be regarded as an involucre.

INVOLUTE. See Evolute.

INVOLU'TION AND EVOLUTION are two operations the converse of each other. The object of the first is to raise a number to any power, which is effected by continuously multiplying the number by itself till the number of factors is equal to the number designating the power; thus, 2 raised to the *third* power is $2 \times 2 \times 2$, or 8; 7 raised to the *fourth* power is $7 \times 7 \times 7 \times 7$, or 2401, etc. Evolution, on the other hand, is the extraction of a root of any number, that is, it is a method for discovering *what* number, when raised to a certain power, will give a certain known number—e.g., the square root of 64 is 8, that is, 8 is the number which, raised to the second power, will give 64; 3 is the fourth root of 81, that is, 3 raised to the fourth power is 81, and so on. The symbols expressive of the two operations are as follows: 5^3 means that 5 is to be raised to the third power; $(7^2)^5$ means that the square or second power of 7 is to be raised to the fifth power; $\sqrt[4]{9}$ or $\sqrt[2]{9}$ or $9^{\frac{1}{2}}$ signifies that the extraction of the second or square root of 9 is required; $\sqrt{256}$ or $256^{\frac{1}{4}}$, that the fourth root of 256 is to be extracted; and so on. Involution and evolution, like multiplication and division, or differentiation and integration, differ in the extent of their application; the former, or direct operation, can always be completed, while there are numberless cases in which the latter fails to express the result with perfect accuracy.

INYO, a co. of California, bounded w. by the Sierra Nevada, and e. by Nevada; 4,725 sq.m.; pop., '80, 2,928. One of the lofty peaks of the Sierra Nevada here is Mt. Whitney. Owens river flows into Owens lake, a large body of water. Part of the valley of the river is fertile. Gold, copper, tin, sulphur, and salt are found. The staple products are grain, hay, wool, and pork. There are some quartz and saw mills. Capital, Independence.

IO, in Greek mythology the daughter of Inachus or Iasus, and priestess of Juno at Argos, was loved by Jupiter, who, on account of Juno's suspicions, changed her into a white cow. Juno having obtained of him the cow as a present, set the hundred-eyed Argus to watch her. Mercury by command of Jupiter killed Argus and released her. Juno then sent a gad-fly, which pursued her until in her wanderings she reached Egypt, where she recovered her original form. The full account of this myth is found in the Prometheus of Æschylus. According to the usual explanation, Io symbolically represents the moon, Argus the stars, and Mercury the clouds.

I'ODINE (symb. I. equiv. 127) is one of a group of four non-metallic elements to which the term halogens (q.v.) has been applied. It derives its name from Gr. *iōdēs*, violet-like, in consequence of its magnificent purple color when in a state of vapor. At ordinary temperatures, it usually occurs in solid dark-gray glistening scales; it is, however, crystallizable, and sometimes appears as an octahedron with a rhombic base. It is soft, and admits readily of trituration, has the high specific gravity of 4.95, and evolves a peculiar and disagreeable odor, which indicates its great volatility. It fuses at 225°, and at about 350° it boils, and is converted into the purple vapor to which it owes its name; it has an acrid taste, and communicates a brownish-yellow color to the skin. It is very slightly soluble in water, but dissolves readily in watery solutions of iodide of potassium and of hydriodic acid, and in alcohol and ether. Iodine vapor is the heaviest of all known vapors, its specific gravity being 8.716. It combines directly with

phosphorus, sulphur, and the metals. Its behavior with hydrogen is analogous to that of chlorine and bromine (see HYDROCHLORIC ACID), but its affinities are weaker than those of the last-named elements. It likewise combines with numerous organic substances, and the compound which it forms with starch is of such an intense blue color, that a solution of starch forms the best test for the presence of free iodine. By means of this test, one part of iodine may be detected when dissolved in one million parts of water.

The following are some of the most important iodine compounds. With hydrogen, it forms only one compound, *hydriodic acid* (HI), a colorless pungent acid gas, which in most respects is analogous with hydrochloric acid. It is obtained by the action of water on teriodide of phosphorus. The soluble iodides of the metals may be obtained by the direct combination of hydriodic acid with the metallic oxides, the resulting compounds being the metallic iodide and water. Some of these iodides are of extreme brilliancy, and others are of great value in medicine; amongst the latter must be especially mentioned iodide of potassium, iodide of iron, and the iodides of mercury.

Iodide of potassium is, next to quinine and morphia, the most important medicine in the pharmacopœia. It crystallizes in colorless cubes, which are sometimes clear, but usually have an opaque whitish appearance, and are soluble in water and spirit. It is decomposed and the iodine set free, by chlorine, bromine, fuming nitric acid, and ozone (q.v.). There are various ways of obtaining this salt; the following is one of the best. If iodine be added to a warm solution of potash until a brown tint begins to appear, iodide of potassium (KI) and iodate of potash (KO, IO_5) are formed. By gentle ignition of the residue obtained by evaporation, the iodate is decomposed into iodide of potassium and oxygen, so that all that remains is fused iodide of potassium, which is dissolved in water and allowed to crystallize. Iodide of iron is formed by digesting iron wire or filings in a closed vessel with four times the weight of iodine suspended in water. Direct combination takes place, and a pale-green solution is formed, which by evaporation *in vacuo* yields crystals. It is the solution which is most commonly employed in medicine, but as, on exposure to the air, it becomes decomposed, and iodine is liberated, it is usually mixed with strong syrup, which retards this change.

There are two iodides of mercury, viz., the green sub-iodide (Hg_2I) and the red iodide (HgI). They may be formed either by the direct union of the two elements, or by the double decomposition of iodide of potassium and mercurial salts. There are two well-defined compounds of iodine and oxygen, viz., iodic acid (IO_5) and periodic acid (IO_7), corresponding to chloric and perchloric acid, neither of which are of any special interest.

Iodine in small quantity, and usually in combination with sodium, magnesium, or calcium, is very widely diffused over the earth's surface. It exists in sea-water, in marine animals and plants, and in certain mineral springs. It is also found in several minerals, as, for example, in certain Mexican silver ores, in Silesian zinc ores, in phosphorite from the Upper Palatinate, and in coal.

Iodine was discovered in 1811, by Courtois, in the waste liquors produced in the manufacture of carbonate of soda from the ashes of sea-weeds. A few years later, Gay-Lussac discovered that it was a simple elementary body. It is obtained from the half-fused ash of dried sea-weeds, which is known in this country as kelp (q.v.), and in Normandy as varek, and contains the iodides of sodium, potassium, magnesium, and perhaps calcium in considerable quantity. The iodine is liberated by the addition of binoxide of manganese and sulphuric acid. Most of our commercial iodine is prepared in Glasgow.

The preparations of iodine are employed extensively in medicine and in photography (q.v.). Iodide of potassium, and the preparations of iodine generally, are almost entitled to be regarded as specifics in cases of goître, bronchocele, or Derbyshire neck. Out of 364 cases (collected by Bayle) which were treated with iodine, 274 were cured. Manson, Lugol, and others have shown the value of the iodine-treatment in scrofula. The preparations of iodine are also eminently successful as resolvents in chronic induration, and enlargement of the liver, spleen, uterus, etc. In many forms of chronic rheumatism, and in certain affections of the osseous system, due to a syphilitic taint, iodide of potassium is of the greatest service; and its value in the treatment of chronic lead-poisoning is not so generally known, even in the medical profession, as it deserves to be. The iodide of potassium dissolves the compounds of lead with albumen, fibrine, etc., which abound in the body in chronic lead-poisoning; and these dissolved compounds are excreted by the kidneys. In these cases, lead may often be detected in the urine, almost immediately after the administration of the iodide. This salt has a similar action in chronic mercurial poisoning, and cases are recorded of mercurial salivation having come on during the use of iodide of potassium, in consequence of the liberation of mercury, which had been previously fixed in the system.

Iodide of iron, which may be given either in syrup or in the form of Blancard's pills (an excellent French mode of administering this salt), is especially serviceable in scrofulous affections of the glandular system, in which the use both of iodine and of iron is indicated. The iodides of mercury have been prescribed with good effect in various forms of syphilis. They must be given with caution, on account of their energy, the average dose of the red iodide being a fraction ($\frac{1}{16}$ to $\frac{1}{4}$) of a grain. Pure iodine is seldom prescribed internally; but in the form of tincture and ointment, it is a

most useful topical application in cases of goître, local enlargements, diseases of joints, chilblains, etc.

In large doses, iodine and most of the iodides act as irritant poisons; but very few fatal cases are on record. In the event of poisoning with the tincture of iodine, the first point is to evacuate the stomach; and the vomiting is assisted by the copious use of tepid liquids, containing starchy matter, as, for instance, starch, flour, or arrow-root boiled in water; the object being to form iodide of starch, which is comparatively inert.

IODOFORM, a substance of analogous composition to chloroform (q.v.), the chlorine in the latter being replaced by iodine, its formula being CHI_3 (using modern equivalent numbers). It is a solid, yellow crystallizable substance, obtained by the action of tincture of iodine upon an alcoholic solution of potash, the reactions being similar to those which take place in making chloroform by this method. It melts at 246.2° F., but distills with the vapor of water at 212°. It possesses some of the anæsthetic properties of chloroform, but it has a wider use in medicine, being employed in those cases in which the action of iodine (q.v.) is indicated. At the same time it will relieve pain, and is therefore peculiarly applicable in cases of painful tumors. It is said to be a successful application to ringworm of the scalp, to ulcers of the cornea, and for promoting the healing of burns and blisters. Gastralgia, alone or connected with ulcer of the stomach, has been relieved by its administration, and different forms of external neuralgia are said to have been cured by it. The dose of iodoform is from one to three grains three times a day, given in the form of a pill. As an outward application it may be dissolved in glycerine or alcohol, or an oil; or it may be prepared in the form of an ointment. A common form for topical application is a solution of one part of iodoform in four parts of sulphuric ether.

I'ON, in Grecian mythology the reputed son of Xuthus and Creusa; but Euripides in his tragedy *Ion* makes him the son of Apollo.

IO'NA, the modern name of the most famous of the Hebrides, is believed to have originated in a mistaken reading of *n* for *u;* the word, in the oldest manuscripts, being clearly written *Ioua*. From the 6th c. to the 17th c. the island was most generally called *I, Ii, Ia, Io, Eo, Hy, Hi, Hii, Hie, Hu, Y,* or *Yi*—that is, simply, "the island;" or *Icolmkill, I-Columb-Kille,* or *Hii-Colum-Kille*—that is, "the island of Columba of the church."

It is about 3 m. long, and varies in breadth from a mile to a mile and a half. In 1881 it had a pop. of 243. Its area, computed by Bede at "five families" (or "five hides of land," as the passage is rendered in the Anglo-Saxon Chronicle), is estimated at 2,000 imperial acres, of which rather more than a fourth part is under tillage. The soil is naturally fruitful, and yields earlier crops than most parts of Great Britain, barley sown before the middle of June being ready for the sickle in August. This remarkable fertility was regarded as miraculous in the dark ages, and, no doubt, led to the early occupation of Iona. Dunii, the highest point of the island, is 330 ft. above the sea-level.

Its history begins in the year 563, when St. Columba (q.v.), leaving the shores of Ireland, landed upon Iona with twelve disciples. Having obtained a grant of the island, as well from his kinsman, Conall, the son of Comghall, king of the Scots, as from Bruidi, the son of Melchon, king of the Picts, he built upon it a monastery, which was long regarded as the mother-church of the Picts, and was venerated not only among the Scots of Britain and Ireland, but among the Angles of the n. of England, who owed their conversion to the self-denying missionaries of Iona. From the end of the 6th to the end of the 8th c. Iona was scarcely second to any monastery in the British isles; and it was this brilliant era of its annals which rose in Johnson's mind when he described it as "that illustrious island which was once the luminary of the Caledonian regions, whence savage clans and roving barbarians derived the benefits of knowledge and the blessings of religion." But neither piety nor learning availed to save it from the ravages of the fierce and heathen Norsemen. They burned it in 795, and again in 802. Its "family" (as the monks were called) of 68 persons were martyred in 806. A second martyrdom, in 825, is the subject of a contemporary Latin poem by Walafridus Strabus, abbot of the German monastery of Reichenau, in the lake of Constance. On the Christmas evening of 986 the island was again wasted by the Norsemen, who slew the abbot and 15 of his monks. Towards the end of the next century the monastery was repaired by St. Margaret, the queen of king Malcolm Canmore. It was visited in 1097 by king Magnus the barefooted, of Norway. It was now part of that kingdom, and so fell under the ecclesiastical jurisdiction of the bishop of Man and the archbishop of Drontheim. In 1203 the bishops of the n. of Ireland disputed the authority of the Manx bishop, pulled down a monastery which he had begun to build in the island, and placed the abbey under the rule of an Irish abbot of Derry. The Scottish church had long claimed jurisdiction in Iona, and before the end of the 13th c. the island fell under the rule of the Scottish king. Its abbey was now peopled by Clugniac monks; and a nunnery of Austin canonesses was planted on its shores. Towards the end of the 15th c. it became the seat of the Scottish bishop of the isles, the abbey church being his cathedral and the monks his chapter.

No building now remains on the island which can claim to have sheltered St. Columba or his disciples. The most ancient ruins are the Laithrichean, or Foundations, in a little bay to the w. of Port-a-Churraich; the Cobhan Cuildich, or Cudees's Cell, in

a hollow between Dunii and Dunbhuirg; the rath or hill-fort of Dunbhuirg; and the Gleann-an-Teampull, or Glen of the Church, in the middle of the island, believed to be the site of the monastery which the Irish bishops destroyed in 1203. St. Oran's chapel, now the oldest church in the island, may probably be of the latter part of the 11th century. St. Mary's nunnery is perhaps a century later. The cathedral, or St. Mary's church, seems to have been built chiefly in the early part of the 13th century. It has a choir, with a sacristy on the n. side, and chapels on the s. side; n. and s. transepts; a central tower, about 75 ft. high; and a nave. An inscription on one of the columns of the choir appears to denote that it was the work of an Irish ecclesiastic who died in 1202. On the n. of the cathedral are the chapter-house and other remains of the conventual or monastic buildings. In the "Reilig Oran"—so called, it is supposed, from St. Oran, a kinsman of St. Columba, the first who found a grave in it—were buried Ecgfrid, king of Northumbria, in 684; Godred, king of the Isles, in 1188; and Haco Ospac, king of the Isles, in 1228. No monuments of these princes now remain. The oldest of the many tombstones on the island are two with Irish inscriptions, one of them, it is believed, being the monument of a bishop of Connor who died at Iona in 1174.

After centuries of neglect this interesting island seems now to be in the way of improvement. It possesses a church connected with the establishment, also a free church, and a school. A small and commodious inn—the St. Columba—was erected in 1863 by the duke of Argyll, the proprietor of Iona; by which means tourists and antiquarian explorers are enabled to make visits of satisfactory duration. During summer steamers from Oban (see HEBRIDES) call at Iona twice a week; they land passengers by boats at Baile Mor, the only village on the island, and usually allow time for visiting the ruins. See the duke of Argyll's *Iona* (1871).

IONA ISLAND, a small island in the Hudson river, in Rockland co., about 40 m. from New York. It has extensive vineyards, and is a popular resort for excursions.

IO'NIA, the ancient name of the most flourishing country of Asia Minor. It received its name from the Ionians (one of the four most ancient tribes in Greece), who, again, according to the mythological account, derived theirs from Ion, the son of Apollo by Creusa, a daughter of a king of Athens. According to the usually received tradition, they were driven out of the Peloponnesus by the Achaians, and removed to Attica, whence, about 1050 B.C., bands of them went forth to settle on the coast of Asia. Ionia was a beautiful and fertile country, extending, according to Ptolemy, from the river Hermus to the river Meander, along the coast of the Ægean sea, but Herodotus and Strabo make it somewhat larger. It soon reached a high point of prosperity; agriculture and commerce flourished, and great cities arose, of which Ephesus, Smyrna, Clazomenæ, Erythræ, Colophon, and Miletus were the most celebrated. These free cities, which formed the nucleus of the IONIAN LEAGUE, were, however, gradually subdued by the kings of Lydia, and passed (557 B.C.) under the sway of the Persians, but were allowed a considerable measure of internal liberty. During the great Persian war, the contingent which they were compelled to furnish to their oriental masters deserted to the Greeks, at the battle of Mycale (479 B.C.), whereupon the Ionians entered into an alliance with Athens, upon which they now became dependent. After the Peloponnesian war, they were subject to the Spartans, and again (387 B.C.) to the Persians till the time of Alexander the great. From this period, Ionia shared the fate of the neighboring countries, and in 64 B.C. was added to the Roman empire by Pompey, after the third Mithridatic war. In later times, it was so ravaged by the Turks that few traces of its former greatness are now left.—The *Ionians* were regarded as somewhat effeminate. They were wealthy and luxurious, and the fine arts (see IONIC ARCHITECTURE) were cultivated amongst them at a much earlier date than amongst their kinsmen in the mother-country. The *Ionic Dialect* excels the other Greek dialects in softness and smoothness, chiefly from the greater number of vowels introduced.

IONIA; a vill. in Ionia co., Mich., on Grand river, and on the Detroit and Milwaukee railroad, 38 m. n. w. of Lansing; pop. 4,190. It has 8 churches, 2 national banks, a high school, a public park, a state-prison, 2 iron foundries, a brewery, a pottery, a brickyard, 2 flouring mills, railroad repair-shops, and 3 newspapers.

IO'NIA, a co. in central Michigan; 576 sq.m.; pop. '80, 33,872. It is watered by Grand, Flat, Maple, and Looking-glass rivers. The surface is undulating, and there are extensive forests of beech, pine, and sugar-maple. The soil is generally fertile. The chief products are wheat, maize, oats, hay, wool, and lumber. The Detroit, Lansing and Lake Michigan, and the Detroit and Milwaukee railroads intersect the county. There are numerous manufactories for carriages, agricultural implements, saddlery, sash, doors and blinds, and woolen goods; also flour and saw mills. Cap., Ionia.

IO'NIAN ISLANDS, a group, or rather chain, running round the w. coast of Epirus, and w. and s. of Greece. It consists of about 40 islands, of which Corfu, Paxo, Santa Maura, Theaki, Cephalonia, Zante, and Cerigo, are of considerable size; the total area is about 1000 sq.m., and the pop. '70, 218,879, is mostly of Greek descent. The surface is generally mountainous, the plains and valleys being fertile. The collective term "Ionian" is of modern date. After the division of the Roman empire these islands were included in the eastern half, and so continued till 1081, when the duke of Calabria (subsequently

king of Naples) took possession of them. From this time they underwent a continual change of masters, till the commencement of the 15th c., when they by degrees came into the possession of the Venetians, who in 1797 ceded them to France. They were seized by Russia and Turkey in 1800, by France in 1807, by Britain in 1809, and on Nov. 5, 1815, were formed into a republic ("The Septinsular republic") under the protectorate of the latter. While they were connected with England, the government was carried on by two assemblies, and the *lord high commissioner*, who was the representative of her majesty. The *lower assembly* consisted of 40 members, who required to be nobles; 29 were elected by the islanders themselves, and 11 by the lord high commissioner; their term of office was five years, during which period they held three sessions, of three months each. The *senate*, composed of five members, which the commissioner had power to increase to seven, formed the executive. The commissioner was invested with extensive powers; he could convoke an extraordinary meeting of parliament, confirm or reject the resolutions of the senate, and veto all bills passed by the legislature. Up to 1848 the press was restricted, and the government was really a despotism, but in that and the following year widespread dislike of the English government became apparent. To remove what were supposed to be grievances, lord Seaton, then lord high commissioner, introduced sweeping changes in the constitution, including vote by ballot, lowering of the franchise, and freedom of the press. A demand was then made for annexation to the kingdom of Greece, and an insurrection broke out in Aug., 1849, in Cephalonia. It was suppressed by sir Henry Ward, who had succeeded lord Seaton, with what was considered by some persons as undue severity. Fresh concessions were granted, but without appeasing the malcontents. In the end of 1858, Mr. Gladstone was sent as a special commissioner to ascertain what could be done to meet the claims of the population. But he found that they would be satisfied with nothing but annexation to Greece. There was no great desire on the part of the English government to continue their connection with the Ionian islands. They had cost the United Kingdom £100,000 per annum, and had been a perpetual source of annoyance. In 1863 the election of the son of the king of Denmark as constitutional king of Greece supplied England with an opportunity of getting rid of this troublesome dependency. On March 29, 1864, a treaty was concluded at London by which they were annexed to Greece, and since this period they have formed a province of the Hellenic kingdom. In Feb., 1867, they were visited by a series of shocks of earthquake, most violent in Cephalonia, where they caused great destruction of life and property, and almost destroyed the two chief towns. See Murray's *Handbook for Greece and the Ionian Islands*, by R. G. Watson, 4th edition, 1872.

IONIAN MODE, in music, one of the old church modes, said to be the same as the ancient Greek mode of that name, and the only one of the old church modes which agrees with our modern system of music, the Ionian mode being the same as our key of C major. The character of the Ionian mode, however, must have appeared to the ancients more properly defined than it can to us, as it was the only one of their modes which had a major third and a sharp seventh.

IONIAN SEA, a name anciently given to that part of the Mediterranean which washed the shores of Greece and Epirus, separating them from Italy and Sicily. It is connected with the Adriatic by the strait of Otranto. The name is found first in Æschylus, but its origin and exact meaning are doubtful.

ION'IC ARCHITECTURE, a style of Greek architecture which took its origin in Ionia, and seems to have derived many of its characteristic features from Assyria. See GRECIAN ARCHITECTURE. The chief peculiarity of Ionic architecture is the capital of the columns (q.v.), which is decorated with spiral ornaments called volutes (q.v). The columns have also bases, which were not used in Doric architecture. The cornice is distinguished by the dentil band, an ornament first introduced in this style. The honeysuckle ornament (q.v.), so much used in Ionic architecture, is one of the features which indicate its eastern origin.

Many large temples were erected in this style in Asia Minor and Greece. Among the finest examples now existing are the temples of Erechtheus and Minerva Polias on the Acropolis at Athens, Apollo Didymæus at Miletus, Minerva Polias at Priene, and Bacchus at Teos; and the temple of Fortune at Rome.

IONIC SCHOOL is the collective name given to the earliest Greek philosophers, Thales, Anaximander, Anaximenes, Heraclitus, and Anaxagoras, on account of their following one general tendency, and belonging for the most part to Ionia. See the biographies of these philosophers.

IO'NIES, a small tribe of Indians of the family of the Caddoes, and said by Spanish writers to be a part of the confederacy known as the Texas. They consider the Hot springs of Arkansas as their original abode, whence they afterwards removed to Texas. They are a peaceful tribe, and cultivate the land for their support. In 1859 they were removed by the government to a district on the Wachita river, Indian territory.

IOS'CO, a co. in s. Michigan, on Lake Huron and Saginaw bay ; 550 sq.m.; pop. '80, 6,873. It is intersected by the Au Sable and Au Gres rivers. It is nearly level, and has extensive forests of pine trees. There are many saw mills, and the principal export is lumber. Cap., Tawas city. 210,644 barrels salt were manufactured, 1883.

I. O. U., a memorandum of debt given by a borrower to a lender, so called from being made in this abbreviated form:

London, January 1, 1878.

Mr. A. B., I. O. U. £20.

C. D.

It is a convenient document, because it requires no stamp, and yet it is valuable evidence of the existence of the debt, in case an action is afterwards brought. If, however, the I. O. U. contain any promise to pay the debt, then it will amount to a promissory-note, and be void unless it have a stamp.

IOWA, one of the United States of America, was organized as a state, with governor and legislature, in 1846. It lies between 40° 20′ and 43° 30′ n. lat., and 90° 12′ and 96° 53′ w. long., and extends 208 m. from n. to s., and 300 from e. to w., with an area of 55,045 sq.m., or 35,228,800 acres. It is bounded on the n. by Minnesota; e. by Wisconsin and Illinois, from which it is separated by the Mississippi river; s. by Missouri; and w. by the state of Nebraska, from which it is separated by the Missouri river. It has 99 counties, with Des Moines for its capital. The pop. in 1840 was 43,112; in 1850, 192,214; in 1860, 674,948; in 1870, 1,182,933. The rivers are the Mississippi and Missouri on its eastern and western borders, and the Des Moines, Iowa, Red Cedar, and their branches. The surface is undulating and beautiful, with alternate forests and prairies. There are no mountains; but bold bluffs, with picturesque ravines, line the rivers. In the n.e. there are rich deposits of lead, and coal in the s. and w., with iron, marble, clay, gypsum, etc. The soil is exceedingly fertile; and the climate healthful; the peach blossoms in the middle of April, but the winters are severe, with an average of 26°. The chief productions are wheat, maize, flax, tobacco, cattle, and hogs. It has not much direct foreign commerce, but trades extensively with the Atlantic and gulf towns, and with the interior. The chief river ports of Iowa are Keokuk, Fort Madison, Burlington, Muscatine, Davenport, Clinton, Bellevue, and Dubuque. There are many manufactories, and in 1875 there were 3,767 m. of railway. In 1870 there were 7,322 public schools, 49 colleges, and 103 other schools, with a total attendance of 217,654.

IOWA (*ante*) is the most purely agricultural of all the United States. The beauty of its scenery, the evident fatness of its soil, its natural good drainage, attracted the best class of farmers and business emigrants from the north-eastern states, filling it with a population of great thrift, energy, and intelligence. Midway between the Atlantic and Pacific oceans, drained e. by the Mississippi and w. by the Missouri, and in the zone of the greatest movement of migration, it became populous with a rapidity never before equaled in the history of states so purely agricultural, or which have no extraordinary city growth; and its wealth and population are distributed with remarkable uniformity.

History.—Iowa was originally a part of the immense territory included in Louisiana, and ceded to the United States in 1803. Its name, signifying in the Indian language "the beautiful country," is derived from the river so designated. The first white settlement within the limits of the state was made in 1788 by Julian Dubuque, a Frenchman from Canada, who obtained a grant of a large tract, including the city now bearing his name, and the rich mineral lands surrounding it. He built a fort, carried on the mining of lead, and traded with the Indians until his death in 1810. In 1834 the territory now constituting the state of Iowa was placed under the jurisdiction of Michigan, and in 1836 under that of Wisconsin. In 1833 settlements were made near Burlington by companies from Illinois and other states, and, a few years later, at other points along the Mississippi. In 1838 the territory of Iowa was organized in due form, the seat of the government being fixed at Burlington. It included within its boundaries at that time the greater part of the present state of Minnesota, and the whole of Dakotah territory. In 1839 the government was removed to Iowa city. In 1844 a state constitution was framed and admission to the union prayed for; but congress was dissatisfied with the boundaries assumed, and therefore denied the petition. Soon afterwards congress defined the boundaries that would be acceptable, and they were approved by the people of the territory; and on Dec. 28, 1846, the new state was admitted to the union. In 1857 the capitol was fixed at Des Moines. The constitution at present in force was adopted in 1857. According to the state census of 1873 the pop. was 1,251,333; number of families, 238,098; dwellings, 231,540; voters, 261,205. In 1880 there were 28,117 persons 10 years old and upward who could not read, and 46,609 who could not write; and of these illiterates, 23,660 were of native, and 20,677 of foreign birth.

The state is well watered, its streams being all affluents of the great rivers which bound it on the e. and west. The Des Moines, the Checaque or Skunk, and the Iowa and its affluents flow into the Mississippi. Those flowing into the Missouri are the Big Sioux (forming a part of the w. boundary), the Chariton, Grand, Platte, Nodaway, and Nishnabatona. The Iowa rises in Hancock co., in the northern part of the state, and joins the Mississippi 35 m. above Burlington. It is nearly 300 m. long, and is navigable 80 m. to Iowa city. The largest of the interior rivers is the Des Moines, which has a course of 300 m. within the state, draining upwards of 10,000 sq.m. of territory. Next to the Des Moines in size is the Red Cedar, which rises in Minnesota, and empties into the Iowa. In the northern portion of the state are many small but picturesque

lakes, of the same kind as those so numerous in Minnesota. The largest of these is lake Okobojo, in Dickinson co., 15 m. long, and from one-fourth of a m. to 2 m. wide. The southern portion of the state is especially beautiful in its undulations, which are intersected by the larger rivers with their fertile valleys. In the n.e. the surface is more elevated, and there are hills and mounds covered with oaks, while the rivers sometimes tumble over precipitous walls of rock. Lead ore and other metals are found in this section in abundance, while the land is of an excellent quality. The prairies of the state are of great extent, and unrivaled beauty and fertility. Coal is found in abundance in the s. and w. portions of the state, the measures extending over an an area of 20,000 sq. miles. Extensive beds of superior peat are found in the northern part of the state. The lead-mine tract is in a belt occupied by Galena limestone, which touches the Mississippi at Dubuque, and lies along the valley of the Turkey river in a n.w. direction. The mines have been worked only in the immediate vicinity of Dubuque, where they are very productive. From 4,000,000 to 6,000,000 lbs. of ore, yielding 70 per cent of lead, have been smelted there annually for some time past. Small deposits of iron ore are found in some parts of the state, and a deposit of gypsum of great purity exists upon a small area near Fort Dodge. Building-stone of excellent quality is abundant. The soils of the state are generally very good, and there is but little inferior land. The valleys of the Iowa, Red Cedar, and Des Moines, especially, are of unrivaled fertility. The climate is well adapted to agricultural operations. The winters, owing to the prevalence of n. and n.w. winds, to which nature offers no obstruction, are severe; but the winds of the summer, which are equally free, serve to temper the heat. The mean temperature of the year is 48°; spring, 47½; summer, 70½; autumn, 45; winter, 23½. There is probably no healthier country than Iowa in the world, a fact which may safely be attributed to the excellent drainage afforded by its streams and its undulating surface. The southern part of the state, along the rivers, is well wooded. In the northern portion trees are comparatively scarce, though groves of pine and cedar are found in some places. The most common trees are ash, elm, sugar and white maple, hickory, walnut, oak, poplar, and basswood. Of fruit trees, the apple, pear, and cherry grow in perfection. The wild grape, plum, and gooseberry are indigenous.

The state, agriculturally considered, is in the foremost rank. For the cultivation of the cereals it is unsurpassed. Potatoes grow in great perfection, and the soil and climate are also favorable for flax, tobacco, and the castor-oil plant. In Crawford co., in the western part of the state, some experiments have been made in tea-culture, and 700 lbs. to the acre have been produced. In 1880 the state contained 24,752,700 acres improved land, 2,755,290 of woodland, and 9,996,010 of other unimproved land.

The statistics of manufactures in 1880 presented these figures: Number of establishments, 6,921; capital invested, $33,987,886; wages paid, $9,725,962; persons employed, 28,372; value of products, $71,045,926. The principal industries were: agricultural implements, blacksmithing, boots and shoes, carpentering and building, carriages and wagons, flouring mills, furniture, malt liquors, lumber, pork packing, saddlery and harness, and woolen goods. An enactment of 1882 forbids the manufacture and sale of intoxicating liquors, as beverages.

The state, while it has no direct foreign commerce, has an extensive trade with Atlantic ports and with the interior. There are three United States ports of delivery—Burlington, Dubuque, and Keokuk. The tonnage is mostly at Dubuque, where there is some ship-building. In 1884 there were in the state 123 national banks, with a capital of $10,145,500, and a circulation amounting to $4,163,941. The number of state banks in 1881 was 58, with capital amounting to $2,655,731, with capital stock amounting to $2,975,727. The insurance risks, written in 1883, amounted to $201,949,207; the fire premiums paid to $3,039,349.

Railways.—Iowa is in the direct line of trans-continental commerce. Five great railways traverse the state from e. to w. and connect directly or indirectly with the Union Pacific railroad. These are, beginning from the s., the Chicago, Burlington, and Quincy, entering the state e. at Burlington and w. at Council Bluffs; the Chicago, Rock Island and Pacific, entering e. at Davenport, and w. at Council Bluffs; the Chicago and North-western, entering e. at Clinton and w. at Council Bluffs; the Illinois Central, entering e. at Dubuque and w. at Sioux City; and the Milwaukee and St. Paul, entering e. at McGregor and w. at Council Bluffs. Besides these e. and w. roads, other lines of roads, together with the ramifying branches of those already named, form a system of connections southward and south-easterly toward the Mississippi and Missouri rivers and St. Louis. These are: the Chicago, Clinton, and Dubuque, and the Dubuque and Minnesota, on the w. bank of the Mississippi from Clinton on the s. to the northern boundary of the state; the Davenport and St. Paul, the Burlington and Minnesota, the Burlington, Cedar Rapids, and Northern, the Central of Iowa, the Keokuk and Des Moines, and Des Moines and Fort Dodge, the Sioux City and St. Paul, and the Sioux City and Pembina. From the older of these roads there are many branches, so that there are few farming districts in the state more than 20 m. from a railway. In its early settlement the territory relied largely on the Mississippi and Missouri rivers, which bound it e. and w., as outlets for its products. Now its network of railways convey most of its surplus eastward and distribute merchandise from older states almost at the producers' doors. The new territories and mining regions westward also consume a

part of its surplus. The miles of railroads in the state in 1884 were 7,217 ; miles of track, 1883, 3,195 ; capital stock, $66,616,471 ; the funded debt of all the roads, $45,093,120 ; earnings for the year ending December 31, 1883—passengers, mail, and express, $1,394,-981 ; freight, etc., $4,582,908—total, 6,317,430 ; dividend, $1,438,280 ; net earnings, $1,994,630. The aggregate cost of railroads and equipment in 1883 was $109,054,910. There are in the state 49 per cent. of steel rail. The miles of track of some of the principal roads in the state are as follows: Chicago, Milwaukee, and St. Paul, 1,369; Burlington, Cedar Rapids, and Northern, 688 ; Chicago, Burlington, and Quincy, 775; Central of Iowa, 423 ; Chicago and North-western, 1,048 ; Wabash, St. Louis, and Pacific railroad, 391. All railroad property is taxable at the same rates and in the same manner as that of individuals, and the state exercises a thorough supervision over the roads to prevent unjust discriminations in rates of fare and freight. The government canal, constructed around the Des Moines rapids at Keokuk, was opened in 1877. It is 7½ m. long and 300 ft. wide, and has three locks, each 350 ft. long. It cost not far from $4,400,000.

The debt of the state is $245,435, nearly half of which is due to the permanent school fund.

Number of farms, 1880, 185,351, of which 122 contained under 3 acres ; 2,063 between 3 and 10 ; 3,334 between 10 and 20 ; 23,488 between 20 and 50 ; 58,519 between 50 and 100 ; 95,163 between 100 and 500 ; 2,298 between 500 and 1,000 ; 364 of 1,000 and over. The cash value of these farms was $567,430,227. Value of orchard products, $1,494,365 ; of market garden products, $401,928 ; of forest products, $3,491,791. The number of horses was 792,322 ; mules and asses, 44,424 ; working oxen, 2,506 ; milch cows, 854,157 ; other cattle, 1,755,343 ; sheep, 455,359 ; swine, 6,034,316. The average monthly wages paid to farm hands was $23.26 ; the average daily wages to transients, $2.00.

The number of live stock assessed for valuation in 1881 was : cattle, 1,964,065 ; horses, 707,778 ; mules, 43,728 ; sheep, 436,306 (a large decrease since 1875) ; swine, 2,224,651.

The amount of agricultural productions in 1883 was : Indian corn, 169,629,000 bush.; wheat, 27,518,000 ; rye, 1,463,076 ; oats, 68,403,600 ; barley, 4,638,348 ; buckwheat, 135,270 ; potatoes, 13,216,868 lbs ; hay, 4,372,849 tons ; hops, 16,915 lbs ; milk, 15,965,612 gallons ; butter, 55,481,958 lbs : cheese, 1,075,988 lbs. The products in 1884 were : corn, 252,600,000 bush.; wheat, 31,270,000 bush.; oats, 78,650,000 bush. Large quantities of tobacco, sweet potatoes, maple sugar, wool and flax are produced, and the cultivation of the vine and sorghum cane has proved highly successful. In 1880, 1,442,333 tons of coal were mined ; in 1883, about 3,881,000. The total valuation of taxable property in 1884 was $465,747,387.

The number of persons of school age (between 5 and 21 years), in the state in 1880 who were enrolled in the public schools was 425,665—505 colored ; whole number of public schools, 12,635 ; number of teachers, 12,794, of whom 8,414 were women ; total receipts, $6,288,167 ; expenditures, $4,347,119 ; amount of permanent school fund, 1882, $3,732,174 ; value of school property, $9,077,142. There were, in 1880, 918,723 native white persons unable to write. The state board for the examination of teachers consists of five persons, two of them appointed by the executive council. One of these two must be a woman. Kindergarten instruction is given in the public schools of several cities. There is a state normal school at Cedar Falls, a chair of didactics at the State university, 5 normal schools, and over 15 departments connected with colleges and academies.

Among the institutions maintained by the state are the college for the blind at Vinton ; the school for the deaf and dumb at Council Bluffs ; the hospitals for the insane at Mount Pleasant and Independence ; the soldiers' orphans' homes at Cedar Falls, Davenport, and Glenwood ; the reform school for boys at Eldora, and one for girls near Salem ; and two penitentiaries, one at Fort Madison, the other at Animosa. The common school system is under the joint direction of state and county superintendents and district directors. Among the higher institutions of learning in the state are the following : The state university at Iowa City, and the state agricultural college at Ames, both under the patronage of the state ; Upper Iowa university at Fayette, Methodist ; Tabor college at Tabor, Congregational ; German college at Mt. Pleasant, Methodist ; Iowa Wesleyan university at Mt. Pleasant, Methodist ; Whittier college at Salem, Friends ; Humboldt college at Springvale ; Cornell college at Mt. Vernon, Methodist ; Western college at Western, United Brethren ; Oskaloosa college at Oskaloosa, Disciples; Central university of Iowa at Pella, Baptist ; Amity college at College Springs ; university of Des Moines, at Des Moines, Baptist ; Iowa college at Grinnell, Congregational ; Penn college at Oskaloosa, Friends ; Simpson Centenary college at Indianola, Methodist ; Norwegian Luther college at Deborah, Lutheran ; and Burlington university at Burlington. The whole number of universities and collegiate institutions in 1882 was 19, of collegiate students, 1,639. The agricultural college admits students of both sexes and unites manual labor with study. There were, in 1882, 4 schools of theology, 3 of law, 3 of medicine (regular school), and one homeopathic, one eclectic, and one dental ; one scientific school ; Berea college (q. v.), admits both white and colored students. The chief of the public libraries are the state library at Des Moines and the state historical library at Iowa City. According to the estimates of 1883, periodicals published in Iowa were 45 daily, 1 tri-weekly, 6 semi-weekly, 575 weekly, 12 semi-monthly, 28 monthly. About 36 were German. The number of religions organizations, according to the census of 1870,

was 2,763; church edifices, 1446; church property, $5,730,352. The chief denominations are the Baptist, Christian, Congregational, Episcopal, Friends, Jews, Lutheran, Methodist, Presbyterian, Reformed, Roman Catholic, Second Advent, United Brethren in Christ, Universalist, and Unitarian.

The general election is held on the 2d Tuesday in Oct., except in the years of the presidential election, when it occurs on the Tuesday next after the first Monday in November. The governor and lieutenant-governor are elected for 2 years by a plurality of the popular vote. The salary of the former is $3,000 per annum. The legislature consists of a senate of 50 members elected for 4 years, half of them biennially, and a house of 100 members elected biennially. The sessions are biennial, occurring in the even years. Senators must be 25 years of age, representatives 21 years, and the governor and lieutenant-governor 30 years. The secretary of state, auditor of state, register of state land office, and superintendent of public instruction are elected for 2 years, and each has a salary of $2,200. The governor appoints the adjutant- and inspector-general and the state librarian for terms of 2 years. The supreme court consists of four judges, elected by the people for 6 years, one every second year, and the one having the shortest time to serve is chief-justice. Judges of the district court are elected in single districts for 4 years. The judges of the supreme court receive a salary of $4,000, those of the district court $2,200 per annum. Circuit courts, consisting of a single judge, are held by the district court judges. The constitution prohibits the lending of the credit of the state for any purpose, or the borrowing of more than $250,000 at any one time, but permits a larger debt to be contracted to repel invasion or suppress insurrection. No corporation can be created by special law, and stockholders in banks are individually liable to double the amount of their stock. The legislature is prohibited from granting divorces or authorizing lotteries. The property rights of husbands and wives are equal, each upon the death of the other inheriting one-third in value of his or her real estate, while neither is liable for the separate debts of the other. The contracts made by the wife in her own name are enforced by or against her precisely as if she were unmarried. A married woman may sue and be sued without the husband being joined in the action. Women are by law eligible to all offices connected with public schools. The state offers a premium for the planting of forest trees by deducting a certain sum from the taxes of citizens in proportion to the number of trees they may set out. The amount of property thus exempted from taxation for the years 1879 and 1880 is estimated at nearly $6,000,000. A new state capitol is nearly completed. Its greatest length is 263 ft., and its greatest width 246 feet. It is estimated to cost not far from $2,000,000. The electoral votes of Iowa have been cast as follows: 1848, Cass and Butler, 4; 1852, Pierce and King, 4; 1856, Fremont and Dayton, 4; 1860, Lincoln and Hamlin, 4; 1864, Lincoln and Johnson, 8; 1868, Grant and Colfax, 8; 1872, Grant and Wilson, 11; 1876, Hayes and Wheeler, 11; 1880, Garfield and Arthur, 11; 1884, Blaine and Logan, 13.

IOWA, a s. e. co. of Iowa, intersected by the Iowa and the n. branch of the English rivers, 576 sq. m.; pop. '80, 19,221. It is nearly level, well wooded, and has a fertile soil, much of it prairie. The staple productions are wheat, oats, maize, potatoes, hay, and pork. It is traversed by the Chicago, Rock Island, and Pacific railroad. Bituminous coal is here found. Capital, Marengo.

IOWA, a co. in s. w. Wisconsin; 750 sq. m.; pop. '80, 23,628. It is bounded by Wisconsin on the north. The surface is varied by hills, valleys, and forests, the latter not extensive. The soil is fertile, yielding wheat, maize, oats, and hay. Mines of zinc and copper have been opened, and lead is abundant. A division of the Milwaukee and St. Paul railroad passes along the n. border, and Mineral Point railroad runs to the county seat, Dodgeville.

IOWA CITY, a city in Iowa, United States, formerly the capital of the territorial government, is situated on the Iowa river, 80 m. from its mouth. It is built on a succession of plateaux, rising from the river. The first is a public promenade; the third is crowned by the capitol, now the state university. It has also county buildings, and the state asylums, with factories on the river. Iowa City has steamboat navigation to the Mississippi, and is on the Chicago, Rock Island, and Pacific railroad. Pop. '70, 5,914.

IOWA CITY (*ante*) is the capital of Johnson co., and was, 1839–57, the capital of Iowa territory and state; pop. '80, 7,123. It is 54 m. from Davenport, and 120 m. from Des Moines, and connected with these by the Chicago, Rock Island, and Pacific railroad. The city is built on a high plateau 150 ft. above the river, and surrounded by hills. The Iowa university, established 1860, and occupying the building formerly used as the capitol, has 4 departments, 600 students, a library of 6,500 volumes, and is open for both sexes. The city contains two national banks, a savings-bank, 3 academies, a high school, 15 churches, a foundry, a paper-mill, manufactories for carriages, plows, pumps, cigars, linseed oil, and alcohol, and has also a number of flouring mills. There are also several newspapers, one of which is in the Bohemian language.

IOWA COLLEGE, at Grinnell, Poweshick co., Iowa; organized in 1848, under the auspices of the Congregationalists. It comprises scientific, academical, normal, medical, and law departments. Instructors in 1885, 17; students, 323. President, Geo. F. Magoun, D.D.

IOWA RIVER, a river of Iowa rising in Hancock co. Flowing s.e. 300 m., it empties into the Mississippi. It is navigable for small vessels 80 m. to Iowa city.

IOWA STATE AGRICULTURAL COLLEGE, at Ames, Story co.; organized in 1869, with an endowment of 204,309 acres of land, appropriated by act of congress of July 2, 1862; annual income, $41,000. The college farm contains 900 acres, of which 60 acres are included in the lawn and ornamental grounds. The main college building is four stories high above the basement, 150 ft long by 112 ft. deep through the wings. In the basement are dining-hall, kitchen, laundry, experimental kitchen and laundry, printing-office, and armory. The laboratory is of brick, two stories high, and 70 by 44 feet. Another brick building is devoted to botany and veterinary science, and behind it is the veterinary hospital and dissecting room. The library contains 6,000 volumes. The museum occupies a large room in the main building. It includes mounted specimens of a few mammals; several hundred birds (mounted), representing the avian fauna of the state; a large collection of reptiles, in alcohol; a few fishes; and a small but typical collection of invertebrates. A set of the "Ward models," illustrating the principal larger fossils, and a cabinet of mineralogical specimens, are of service in the study of geology. There are, besides, the following collections in the process of formation: A seed collection; an entomological cabinet; sets of the eggs and nests of birds; the brains of vertebrates; skulls of mammals; and skeletons of vertebrates. New veterinary buildings were begun in 1884. Women are admitted to all the courses of study. Number of professors in 1884, 14; other teachers, 8; students, 252; alumni, 256. All male students are required, unless excused by the proper authority, to wear the prescribed uniform, attend all military exercises in their respective classes, and become members of the college battalion. President, S. A. Knapp, LL.D.

IOWA STATE UNIVERSITY, in Iowa City, was organized in 1847, with an endowment by congress of two townships of land; to which was added in 1878, by the state, $20,000 annually. Its annual income, from all sources, is $51,000. The campus embraces an area of 10 acres, on which are placed the three principal college buildings. Besides these, there are, outside the campus but on land owned by the university, an observatory and hospital, in addition to two medical colleges. There is a large laboratory for physical science, with a select apparatus of excellent quality; a laboratory for natural science, with twenty good microscopes; a cabinet, not large, but select in the department of corals, and birds of Iowa. The library contains about 15,000 volumes. Number of professors in 1884, 28; lecturers and instructors, 15; students, 577—95 women. Women are admitted to all the courses of study. There is a gymnasium, and regular military drill and instruction. There is a law department, with 5 professors. The medical department embraces instruction in both the allopathic and homeopathic schools. President, J. L. Pickard, LL.D.

IOWAS, a tribe of American Indians of the Dakotah family, called Iowas by some of the Algonquins, but known among themselves by the name of Pahucha. In 1700 they lived on the Mankato river, Minnesota, numbering 1,500, and often at war with the Osages and other tribes. At different times treaties have been made with them by the United States, by one of which, 1836, they were removed to the w. bank of the Missouri above Wolf river. They have been greatly reduced by intemperance, war, and disease. By a treaty, 1861, they ceded to the United States all but 16,000 acres. The remnants of this tribe, numbering now only 122, are on reservations in Kansas, and the Indian Territory. Those in K. are thrifty and industrious.

IPECACUAN'HA, the name both of a very valuable medicine and of the plant producing it. The plant (*cephaëlis ipecacuanha*) belongs to the natural order *cinchonaceæ*, and grows in damp shady woods in Brazil and some other parts of South America. It is somewhat shrubby, with a few oblongo-lanceolate leaves near the ends of the branches, long-stalked heads of small white flowers, and soft dark purple berries. The part of Ipecacuanha used in medicine is the root, which is simple or divided into a few branches, flexuous, about as thick as a goose-quill, and is composed of rings of various size, somewhat fleshy when fresh, and appearing as if closely strung on a central woody cord. The different kinds known in commerce (*gray, red, brown*) are all produced by the same plant; the differences arising from the age of the plant, the mode of drying, etc. Ipecacuanha root is prepared for the market by mere drying. It is collected at all seasons, although chiefly from Jan. to March; the plant is never cultivated, but is sought for in the forests chiefly by Indians, some of whom devote themselves for months at a time to this occupation. It has now become scarce in the neighborhood of towns.

Various other plants, containing emetine, are used as substitutes for true ipecacuanha. The ipecacuanha of Venezuela is produced by *sarcostemma glaucum*, of the order *asclepiadeæ;* and to this order belongs *tylophora asthmatica*, the root of which is found a valuable substitute for ipecacuanha in India.

It is in the bark of the root that the active principle, the *emetine*, almost entirely lies, and in good specimens it amounts to 14 or 16 per cent; the other ingredients, such as fatty matters, starch, lignine, etc., being almost entirely inert. Emetine is represented by the formula $C_{37}H_{27}NO_{10}$. It is a white, inodorous, almost insipid powder, moderately soluble in alcohol, and having all the characters of the vegetable alkaloids. It acts as a

violent emetic in doses of one-sixteenth of a grain or less, and is a powerful poison. The incautious inhalation of the dust or powder of ipecacuanha—as in the process of powdering it—will often bring on a kind of spasmodic asthma.

In small and repeated doses—as, for instance, of a grain or less—ipecacuanha increases the activity of the secreting organs, especially of the bronchial mucous membrane, and of the skin. In larger doses of from 1 to 5 grains it excites nausea and depression, while in doses of from 15 to 30 grains it acts as an emetic, without producing such violent action or so much nausea and depression as tartar emetic.

Ipecacuanha is useful as an emetic when it is neceesary to unload the stomach in cases where there is great debility, or in childhood. As a nauseant, expectorant, and diaphoretic, it is prescribed in affections of the resipratory organs, as catarrh, hooping-cough, asthma, etc.; in affections of the alimentary canal, as indigestion, dysentery, etc.; and in disorders in which it is desired to increase the action of the skin, as in diabetes, febrile affections, etc.

Besides the powder, the most useful preparations are the wine of ipecacuanha—of which the dose to an adult as a diaphoretic and expectorant ranges from 10 to 40 minims, and as an emetic from 2 to 4 drachms—and the compound ipecacuanha powder, commonly known as *Dover's powder* (q.v.). To produce the full effect as a sudorific, a dose of ten grains of Dover's powder should be followed by copious draughts of white-wine whey, treacle-posset, or some other warm and harmless drink.

IPHIC'RATES, an Athenian general conspicuous in the first half of the 4th c. B.C. He is distinguished for his improvements in military tactics, especially for the light oval target instead of the round heavy buckler of earlier use. A common mode of warfare among the Greek states, who were often at war, was by sudden incursions into each other's territories, and rapid retreats. Iphicrates, seeing that safety required light armor, organized a body of soldiers carrying a light target, and from it called Peltastæ. Their discipline and efficiency were such that but few of the heavy-armed infantry dared to meet them. With these he attacked a Spartan corps near Corinth, 392 B.C., and totally destroyed it. This was followed by successive victories, and his military career was very brilliant. In the Hellespont and with the Persians in Egypt he served with high distinction. After the peace of Antalcidas he married the daughter of Cotys, king of Thrace, and formed an alliance with him against the Athenians for the possession of the Thracian Chersonesus. Subsequently the Athenians pardoned him, and gave him a joint command in the social war. Though accused by one of his colleagues of misconduct, he was honorably acquitted. He lived after this quietly in Athens, where he died at an advanced age.

IPHIGENI'A, in Grecian legend, a daughter of Agamemnon and Clytemnestra, or, according to others, an adopted daughter of Clytemnestra. Her father, having offended Diana, vowed to make atonement by sacrificing to the goddess the most beautiful thing born within the year. This happened to be Iphigenia. Agamemnon long delayed the fulfilment of his vow, but at length the Trojan expedition drew on, and the Greek fleet being detained in Aulis by a calm, the seer Calchas declared that Agamemnon must keep his promise. When Iphigenia was brought to the altar, however, she disappeared, and a hind lay there in her stead, Diana herself having carried her off in a cloud to Tauris, where she became her priestess, but was afterwards recognized by her brother, Orestes, who carried her, along with the image of Diana, to Attica. The legend is of post-Homeric origin. It has, however, been much wrought into Grecian poetry, and afforded many subjects to painters and sculptors. In modern literature it has been again employed with great power of genius and poetic art by Goethe in his *Iphigenia auf Tauris.*

IPOMÆ'A, a genus of plants of the natural order *convolvulaceæ*, differing very little from the genus *convolvulus.* The species are numerous. They are mostly natives of warm countries. Some of them are often to be seen in flower-gardens and hot-houses, being very ornamental, and readily covering trellises with their twining stems, large leaves, and large beautiful flowers. The roots of some of them yield a resinous substance, which possesses properties resembling those of jalap, and the true jalap (q.v.) plant itself has sometimes been referred to this genus.

IPSAMBUL'. See ABOUSAMBUL.

IP'SICA. See MODICA.

IPSUS, a t. of Phrygia, Asia Minor, near, as is supposed, the modern village of Bulavadin, and noted for the battle, 300 B.C., in which Antigonus and his son Demetrius were overthrown by Alexander's four generals, Ptolemy, Seleucus, Cassander, and Lysimachus. Ipsus was the seat of a Christian bishop in the 7th and 8th centuries.

IPSWICH, a t. of Essex co., Mass., 27 m. n.e. of Boston, on the Ipswich river and the Eastern railroad; pop. '80, 3.699. It has 6 churches, a savings-bank, a girls' school of high character, established 1828; an insane asylum, a public library, a high school, a classical academy established 1650, factories for boots, shoes, and hosiery; also planing, saw, and grist mills. The Indian name is Agawam.

IPSWICH, a market t., parliamentary and municipal borough, and river-port of England, capital of the co. of Suffolk, is agreeably situated on the river Orwell, at the foot of a range of hills, 68 m. n.e. of London. The older portions of the town consist of narrow and irregular streets, some of the old houses of which are ornamented with curious carved work. It contains numerous churches and benevolent institutions, a town-hall, a mechanics' institution, with about 700 members; and a working-men's college, with 200 members. Of its educational establishments, the principal is the grammar-school, founded by cardinal Wolsey, and endowed by queen Elizabeth. It has an income from endowment of £116 6s. 8d., has six scholarships, exclusive of an Albert scholarship, founded as a memorial of the late prince consort, and two exhibitions at Pembroke college, Cambridge. There are large iron and soap factories, breweries, corn-mills, and ship-building docks. In 1875, 4,450 vessels, of 340,113 tons, entered and cleared the port. The exports are chiefly agricultural produce, and agricultural implements and machinery; imports, wine, coal, iron, and timber. The town can be approached by vessels of 500 tons. It sends two members to the imperial parliament. Pop. '81, 50,762. Ipswich was pillaged by the Danes in 991, and again in 1000.

IPSWICH, a t. of Queensland, Australia, on the Bremer; pop. '71, 5,092. It has a number of churches, a grammar-school and a hospital, and is a place of increasing business importance.

IRAK-A'JEMI, a large province of Persia, is bounded on the n. by the provinces of Azerbijan, Ghilan, and Mazanderan, and on the e. by Khorasan. On the s. and w. the boundaries are not definitely laid down. In the extreme n. are the Elburz mountains, and throughout the province are several other chains, all of them running from s.e to n.w. A great portion of the surface of the province consists of elevated table-lands, but there are also numerous fertile valleys traversed by rivers. Many of the rivers of Irak-Ajemi are swallowed up by sandy tracts into which they flow. The chief towns of the province are the capital Teheran and Ispahan.

IRAK-A'RABI, a district in Turkey in Asia, the ancient Babylonia (q.v.), comprises the ruins of the ancient cities of Babylon, Seleucia, and Ctesiphon. During the last 250 years of the caliphate this was the poor remnant of their once wide dominion which remained to the successors of Mohammed.

IRAN, the modern native name of Persia. See ARYAN RACE.

IRANIC RACES AND LANGUAGES. See PERSIAN LANGUAGE AND LITERATURE, *ante.*

IRBIT', a district t. of the government of Perm; eastern Russia, since 1775; founded (1635) by Russian emigrants. The town is situated on the rivers Irbit and Nitza, in lat. 57° 35′ n., and long. 62° 50′ e., is 1760 m. distant from St. Petersburg, and contains (1880) 5,000 inhabitants. It is remarkable for its extensive fair, the largest in Russia, after that of Nijni-Novgorod. The fair takes place annually from Feb. 27 till the end of Mar., has been instituted for more than 200 years, and attracts about 10,000 merchants and visitors from Russia, Siberia, Persia, Bokhara, etc. The principal goods are cloths, silk stuffs, brocades, sugar, coffee, china, and hardware from Russia; tea and nankeen from China, through Kiachta; furs and fish from Siberia; cotton stuffs from Bokhara, etc. The whole quantity of goods brought to market is valued at £6,500,000.

IREDELL, a co. of w. North Carolina; 600 sq.m.; pop. '80, 22,672. It is drained by branches of the Gadkin, and is well-wooded, hilly, and fertile. The staple products are grain, cattle, wool, and tobacco. Gold is found. It is traversed by the Western railroad. Capital, Statesville.

IREDELL, JAMES, 1751–99; b. England, of Irish ancestry. He emigrated to North Carolina at the age of 17, was admitted to the bar in 1770, made deputy attorney-general in 1774, judge of the state supreme court in 1777. He was attorney-general of North Carolina, 1779–82; and judge of the United States supreme court from 1790 until his death. He was a man of ability and learning. In 1791 he published *Iredell's Revisal of the Statutes of North Carolina.* His judicial opinion in the case of "Chisolm vs. Georgia" is said to contain the germs of the doctrine of state rights as subsequently developed. He died in Edenton.

IREDELL, JAMES, 1788–1853; son of James; b. N. C. He graduated at the college of New Jersey in 1806, and was admitted to the bar. For 10 years he was a member of the legislature, and twice speaker of the lower house. In the war of 1812 he commanded a company of volunteers at Norfolk, Va. In 1819 he was chosen judge of the superior court; in 1827 was governor of the state; and U. S. senator in 1828–31. For many years after this he was a reporter of the decisions of the state supreme court, and published 13 volumes of law and 8 of equity reports. In 1833 he was one of a commission to collect and revise the state statutes. He published also a treatise on the law of executors and administrators.

IRELAND, an island forming part of the United Kingdom of Great Britain and Ireland, lies between lat. 51° 26′ and 55° 23′ n., and long. 5° 20′ and 10° 26′ west. It is washed on the n., w., and s. by the Atlantic, and on the e. by a strait, called at different

places the North channel, the Irish sea, and St. George's channel, which separates it from the larger island of Great Britain. Its greatest length, from Fair head in Antrim to Crow head in Kerry, is 306 m., but its greatest meridional length is not more than 225; its greatest breadth, between the extreme points of Mayo and Down, is 182 m., but between Galway bay and Dublin it is not more than 120. The total area is about 32,524 sq.m., of which 15,464,825 acres are arable land; 4,357,338 acres are uncultivated; 339,858 are covered with wood; 49,236 are occupied by towns of 2,000 inhabitants, and upward; while the lakes and waters of the country cover 627,464 acres. Pop. '71, 5,412,377. Ireland is divided into four provinces of Ulster, Leinster. Munster, and Connaught, which again are subdivided into 32 counties. The following table exhibits the area of the different provinces and counties, the number of inhabited houses, and the pop. in 1871 and 1881 (as at first published):

Provinces and Counties.	Area in Stat. Acres.	Inhabited Houses, 1871.	Population, 1871.	Population, 1881.
Leinster.				
Carlow	221,342	9,704	51,472	46,568
Dublin	226,517	51,024	405.625	418.910
Kildare	418,436	14,263	84,198	75,804
Kilkenny	509,732	20,609	109,302	99,531
King's	493,985	14,842	75,781	72,852
Longford	269,409	12,000	64,408	61,009
Louth	203,149	16,781	84,198	77,684
Meath	578,657	18,660	94,480	87,469
Queen's	424,854	15,001	77,071	73,124
Westmeath	453,468	15,138	78,416	71,798
Wexford	576,588	24,972	132,506	123,584
Wicklow	500,178	14,114	78,509	70,366
Total	4,876,315	227,108	1,335,966	1,278,989
Munster.				
Clare	827,994	26,159	147,994	141,587
Cork	1,849,685	85,030	516,046	495,607
Kerry	1,185,917	32,233	196,014	201,039
Limerick	680,842	31,847	191,313	180,632
Tipperary	1,061,731	38,354	216,210	199,612
Waterford	461,552	21,139	122,825	112,678
Total	6,067,721	234,762	1,390,402	1,331,115
Ulster.				
Antrim	762,079	74,037	419,782	445,860
Armagh	328,086	34,429	179,221	163,177
Cavan	477,360	26,372	140,555	129,476
Donegal	1,193,442	40,800	217,992	206,035
Down	612,335	55,653	277,775	248,190
Fermanagh	457,370	17,516	92,688	84,879
Londonderry	522,314	32,601	173,932	164,991
Monaghan	319,741	21,821	112,785	102,748
Tyrone	806,657	41,263	215,668	197,719
Total	5,479,384	344,492	1,830,398	1,743,075
Connaught.				
Galway	1,566,352	45,747	248,257	242,005
Leitrim	392,363	17,405	95,324	90,372
Mayo	1,367,618	44,091	245,855	245,212
Roscommon	603,955	25,792	141,246	132,490
Sligo	461,752	20,955	115,311	111,578
Total	4,392,040	153,990	845,993	821,657
General Total (Ireland)	20,815,460	960,352	5,402,759	5,174,836

Physical Aspect.—Ireland is of oblong form, and, like Great Britain, the eastern coast is comparatively unbroken, while the w., n., and s. are deeply indented. It is an undulating or hilly country—less rugged than the Highlands of Scotland, and not so tame as the eastern section of England. Its hills are more rounded than abrupt, and lie not so much in ranges as in detached clusters round the coasts. These mountain tracts rarely extend more than 20 m. inland, and they seen to form a broad fringe round the island; while the interior appears as a basin composed of flat or gently swelling land. The principal ranges are the Mourne mountains in Down, which attain their highest elevation in Slieve Donard, 2,796 ft. above the sea; the mountains of Wicklow, which rise to a height of 3,039 ft.; and Macgillicuddy Reeks in Kerry, which, in the peak of Carran-Tual, the loftiest point in Ireland, reach 3,414 feet. The purely flat or level portions of the island, with the exception of some fine tracts of fertile valley-land in Kilkenny, Tipperary, and Limerick, consist mainly of *bog* or morass, which occupies, according to Dr. Kane, 2,830,000 acres, or about a seventh part of the entire super-

IRELAND

British Miles 0 5 10 20 30 40 50

Irish Miles 0 5 10 15 20 25 30 35 40 45 50

Towns of upwards of 100,000 inhabitants shown thus ■
from 50,000 to 100,000 ●
from 10,000 to 50,000 ⊙
below 10,000 ○

County Towns underlined
Railways shown thus

10 9 8 7 6

55 54 53 52

Longitude West of Greenwich

ATLANTIC OCEAN

IRISH SEA

ST. GEORGE'S CHANNEL

NORTH CHANNEL

SCOTLAND

WALES

ULSTER

CONNAUGHT

LEINSTER

MUNSTER

DONEGAL

LONDONDERRY

TYRONE

FERMANAGH

ANTRIM

DOWN

ARMAGH

MONAGHAN

CAVAN

LOUTH

MEATH

WEST MEATH

DUBLIN

KINGS COUNTY

KILDARE

QUEENS COUNTY

WICKLOW

CARLOW

KILKENNY

WEXFORD

WATERFORD

TIPPERARY

LIMERICK

CLARE

GALWAY

MAYO

SLIGO

LEITRIM

ROSCOMMON

LONGFORD

KERRY

CORK

BELFAST

Inishtrahull

Malin Head

Lough Swilly

Fanad Hd.

Mulroy B.

Sheep Haven

Horn Hd.

Tory I.

Inishbofin

Bloody Foreland

Gweedore B.

Owey I.

Aran I.

Dunglow

Maghery B.

Gweebarra B.

Dawros Hd.

Loughros More B.

Loughros Beg B.

Rossan Pt.

Teelin Hd.

Rathlin O'Birne Is.

Teelin B.

Mc Swynes B.

St. Johns Pt.

Donegal Bay

Milk Haven

Inishmurray

Sligo Bay

Coney Is.

Stags of Broadhaven

Benmee Hd.

Broad Haven

Erris Hd.

Downpatrick Hd.

Killala Bay

Easkey R.

Mullet Pen.

Inishkea Is.

Blacksod Bay

Achill Hd.

Achill I.

Achill Sound

Clare I.

Clew Bay

Inishturk

Inishbofin

Inishark

Ballynakill Har.

High I.

Joyces Country

Twelve Pins

Slyne Head

Mannin B.

Roundstone B.

Birterbuoy B.

Kilkieran B.

Garomna I.

St. Johns (Newfoundland) 2165 Miles

New York 2700 Miles

Aran Is.

Inishmore

Inishmaan

Inisheer

Black Hd.

Galway Bay

Cashla B.

Liscanor Bay

Mal Bay

Doonbeg B.

Donegal Pt.

Moore B.

Loop Head

Mouth of the Shannon

Kerry Hd.

Brandon Bay

Tralee Bay

Dingle Bay

Smerwick Har.

Sybil Hd.

Dunmore Hd.

Gt. Blasquet I.

Vickillane I.

Doulus Hd.

Valentia Har.

Valentia I.

Puffin I.

St. Finans B.

Bolus Hd.

Skellig L.H.

Scariff I.

Kenmare River

Coulagh B.

Cods Hd.

Ballydonegan B.

Dursey I.

Dursey Hd.

Crow Hd.

Bantry Bay

Dunmanus Bay

Sheeps Hd.

Mizen Head

Crookhaven

Long Island Bay

Cape Clear I.

Fastnet Rk.

Sherkin I.

Baltimore

Roe Hd.

Castletownsend

Leap

Skibbereen

Rosscarbery

Clonakilty

Galley Hd.

Clonakilty B.

Rosscarbery B.

Courtmacsherry B.

Old Hd. of Kinsale

Kinsale Harbor

Oyster Haven

Timoleague

Bandon

Kinsale

Cork Harbor

Roches Pt.

Spike I.

Queenstown

Passage West

Owenboy R.

Cloyne

Middleton

Cork

R. Lee

Blarney

Youghal

Youghal Har.

Ardmore

Knockadoon Hd.

Ballycotton L.Ho.

Mine Hd.

Ballycotton B.

Clashmore

Dungarvan

Dungarvan B.

Helvick Hd.

Tallow

Lismore

Cappoquin

Tramore

Tramore B.

Waterford Harbor

Hook Pt.

Passage

Waterford

Knockmahon

Stradbally

Dunmore

Kilmacthomas

Kilworth

Fermoy

Rathcormack

Mallow

Blackwater R.

Kanturk

Doneraile

Buttevant

Newmarket

Kildorrery

Mitchelstown

Knockmeildown Mts.

Monavullagh Mts.

Ardfinnan

Clogheen

Carrickbeg

Commeragh Mts.

Portlaw

Carrick on Suir

Slievenaman

Cahir

Golden Bridge

Fethard

Cashel

Thurles

Holycross

Templemore

Borrisokane

Roscrea

Nenagh

Arra Mts.

Devils Bit

Keeper Mt.

Silvermines

Borrisoleigh

Toomevara

Durrow

Castlecomer

Abbeyleix

Graigue

Ballyragget

Johnstown

Urlingford

Freshford

Kilkenny

Callan

Gowran

Killenaule

Mullinahone

Thomastown

Inistioge

Knocktopher

Graiguenamanagh

Bennetsbridge

Mt. Leinster

Ferns

Borris

Tullow

Carlow

Leighlin Br.

Bagnalstown

Milford

Shillelagh

Tinahely

Carnew

Gorey

Clonegall

Enniscorthy

Wexford

Wexford Harbor

Taghmon

Broadway

Clonmines

Duncannon

New Ross

Castlebridge

Blackwater

Courtown Har.

Arklow

Wicklow

Wicklow Hd.

Mizen Hd.

Lugnaquilla 3039

Baltinglass

Rathdrum

Aughrim

Tullamore

Philipstown

Shannon Bridge

Seven Churches

Clonfert

Eyrecourt

Banagher

Shannon Harb.

Portarlington

Parsonstown or Birr

Mountmellick

Maryborough

Mountrath

Ard Erin

Slieve Bloom Mts.

Portumna

Woodford

Gort

Slieve Bought Mts.

Kinvarra

Ballyvaghan

Kilfenora

Corrofin

Ennistimon

Milltown Malbay

Ennis

Tulla

Clare

Killaloe

Newmarket

Six Mile Br.

Keeper Mt.

Shannon R.

Castleconnel

Limerick

Pallaskenry

Askeaton

Foynes

Adare

Rathkeale

Cahercenlish

Croom

Pallas Green

Caherconlish

Carrigaholt

Ross

Scattery I.

Kilrush

Shannon River

Tarbert

Glin

Listowel

Newcastle

Ballingarry

Bruff

Emly

Tipperary

Ballyheige

Ardfert

Abbeyfeale

Charleville

Kilfinane

Kilmallock

Ardfinnan

Clogheen

Cahir

Galtee Mts.

Slievenaman

Carrick on Suir

Commeragh Mts.

Portlaw

Tralee

Castle Island

Brandon Mt.

Stack Mts.

Dingle

Inch

Castlemaine

Killorglin

Killarney

Killarney Lakes

Macgillicuddy's Reeks

The Paps

Carntual 3414

Mt. Mangerton

Caherciveen

Kenmare

Sneem

Derrynane

Glengariff

Caha Mts.

Roughty R.

Hungry Hill

Whiddy I.

Bantry

Timoleague

Clonakilty

Rosscarbery

Leap

Castletownsend

Toe Hd.

Baltimore

Sherkin I.

Cape Clear

Fastnet Rk.

Lough Derg

Scarriff

L. O'Grady

Nenagh

Roscrea

Borrisokane

Templemore

ficies. The largest of these morasses is the bog of Allen, which stretches in a vast plain across the center of the island, or over a large portion of Kildare, Carlow, King's and Queen's counties—having a summit elevation of 280 feet. Extensive tracts of deep wet bog also occur in Longford, Roscommon, and other counties, and give a peculiarly dreary and desolate aspect to the scenery. Notwithstanding the quantity of water in these bogs, they exhale no miasma injurious to health, owing to the large quantity of tannin which they contain.

Hydrography.—The principal river of Ireland, and the largest in the United Kingdom, is the Shannon (q.v.). The streams which drain the eastern part of the central plain are the Liffey and the Boyne; the south-eastern part, the Suir, the Barrow, and the Nore; while the waters of the north-eastern part are collected into Lough Neagh. chiefly by the Blackwater, and thence discharged into the sea by the lower Bann. The rivers *external* to the great central plain are necessarily short. The principal are the Erne, flowing to the n.w.; the Foyle and the Bann, to the n.; the Lagan, to the n.e.; the Slaney, to the s.e.; and the Bandon, Lee, and Blackwater, flowing in an easterly course through the co. of Cork, the most southern co. in the island. None of these rivers are naturally of importance to navigation. The Shannon, however, has been made navigable to its source by means of locks and lateral cuts; the Barrow, by similar means, to Athy; the Foyle, by canal to Strabane; and several of the others have been artificially united by such lines as the Lagan, Newry, Ulster, Royal, Grand, Athy, and other canals—which now intersect a considerable portion of the island.

The lakes of Ireland (called loughs) are, as might be expected from the surface-character of the country, both numerous and extensive in proportion to the size of the island. The largest is lough Neagh in Ulster, covering an area of 100,000 acres. The other loughs of consequence are loughs Erne and Derg, also in Ulster; Conn, Mask, and Corrib, in Connaught; the Allen, Ree, and Derg, which are expansions of the river Shannon, and the lakes of Killarney (q.v.) in Kerry.—The bays and salt-water loughs which indent the island are also numerous and of considerable importance. About 70 are suitable for the ordinary purposes of commerce; and there are 14 in which the largest men-of-war may ride in safety. The principal are loughs Foyle and Swilly, on the n. coast; the bays of Donegal, Sligo, Clew, and Galway, the estuary of the Shannon, Dingle bay, and Bantry bay, on the w.; the harbors of Cork and Waterford, on the s.; Wexford harbor, the bays of Dublin, Drogheda, and Dundalk, and loughs Carlingford, Strangford, and Belfast, on the east.—The islands are, generally speaking, small and of little importance. On the e. coast the largest is Lambay, about 2½ m. off the coast of Dublin; on the s. and s.e. coasts are Clear island, the Saltees, a dangerous group of islets, about 8 m. s. of the Wexford coast, indicated by a floating light, and Tuscar rock, about 8 m. e. of Carnsore point, also a dangerous ledge, rising 20 ft. above the sea, and surmounted by a light-house after the model of the Eddystone; on the w. coast, the Skelligs, Valentia, the Blaskets, the South Arran isles, Innisbofin, Innisturk, and Clare, Achil or "Eagle" island, and the Inniskea islets; on the n. coast, the North Arran isles, the Tory isles, and Rathlin.

Geology.—A great series of grits and slates of Cambrian age occur in the s.e. of Ireland; the upper portion contains a few fossils of zoophytes and worms. Lower *silurian strata* rest unconformably on the Cambrian rocks in the same district. They consist of flags, slates, and grits many thousand feet in thickness, extending over large portions of Kildare, Wicklow, Wexford, and Waterford. Several detached patches occur to the w, of this district, forming the Keeper, Arra, and Inchiquin mountains. A tract of similar beds stretches from the center of Ireland, near the source of the Shannon, to the coast of Down. The strata in proximity to the Wicklow and Dublin granites are converted into gneiss and mica-slate. This is the condition of all the beds in the n.w., in Donegal, Tyrone, and Mayo; they appear to be a continuation of the highly altered strata of the n. of Scotland. Detached portions of upper silurian measures occur on the western side of the island, in Kerry, Galway, and Mayo.

Between the silurian and old red sandstone is an enormous thickness (11,000 ft.) of sandstone grit and shale in Kerry and Cork. These strata are almost wholly unfossiliferous.

Old red sandstone strata, consisting of red and yellow sandstone and slate, cover a large tract of the s. of Ireland, stretching almost continuously from the extreme w. of Cork and Kerry into Waterford and Kilkenny, being stopped by the silurian rocks of Wexford and Carlow. Along the bases of the silurian mountains of the s. center of Ireland, and in the southern portion of the county of Cork, occurs a great thickness of sandstones, which have hitherto yielded no fossils; some geologists refer these to the old red series, others hold them to be lower carboniferous.

The *carboniferous limestone* is extensively developed in Ireland, occupying the whole of the center of the country, except in those places already alluded to, where the older rocks appear on the surface. This great tract is an extensive plain covered with drift, and with peat-moss and fresh-water marl, in which are found the remains of *megaceros hibernicus* and *bos longifrons*. In Kerry, Cork, and Waterford the strata are very much contorted, the coal-seams are changed into anthracite, and so squeezed and crushed as to be got only in small dice-like fragments. Further n. the strata are nearly horizontal,

but the coal-fields are limited, and the seams are generally of inconsiderable thickness. They occur chiefly in Tipperary, Kilkenny, Tyrone, and Antrim.

Small deposits of *Permian strata* are found at Ardtrea in Tyrone, and at Cultra near Belfast; the sandstones of Roan hill near Dungannon are probably of the same age. The red and variegated marls containing beds of gypsum and rock-salt, which exist on the coast n. from Belfast, are probably *triassic*. Resting on these marls are a few thin beds of *lias*. *Cretaceous* strata occur in Antrim and Derry.

Climate.—Though the climate of Ireland bears, as might have been expected, a strong resemblance to that of Great Britain (q.v.), it has yet a character peculiar to itself, owing to the marked difference in the configuration of its surface; its greater distance from the continent of Europe, and its being, as it were, more completely bathed in the warm waters of the gulf-stream. The mean annual temperature of the central parts of the country is about 50°.0, rising in the s. to 51°.5, and falling in the n. to 48°.5. There are thus 3°.0 of difference between the extreme n. and s., and it may be noted that, speaking generally, this difference is constant through all the seasons of the year. The mean temperature in winter is 41°.5; in spring, 47°.0; in summer, 60°.0; and in autumn, 51°.0.

The annual rainfall averages from 25 to 28 in., except in the neighborhood of hills, where the precipitation is considerably augmented; thus, at Valentia, in Kerry, the rainfall of 1861 amounted to 73 in., and doubtless this large fall was greatly exceeded in those parts which are situated among the higher hills. The rainfall in winter, particularly in the w., is greatly in excess of the other seasons, owing to the low temperature of the surface of the ground during winter, which suddenly chills the warm and moist s.w. winds that prevail, especially at this time of the year, and condenses their vapor into rain. Since in Great Britain the chief mountain ranges are in the w., it follows that over the whole eastern slope of the island the climate is dryer, the amount and frequency of the rainfall much less, and the sunshine more brilliant than in the west. In Ireland, on the other hand, the hills in the w. do not oppose such a continuous barrier to the onward progress of the s.w. winds, but are more broken up and distributed in isolated groups. It follows that the sky is more clouded, and rain falls more frequently in Ireland, and the climate is thus rendered more genial and fostering to vegetation; hence the appropriateness of the name "Emerald Isle." Again, owing to its greater distance from the continent, the parching and noxious e. winds of spring are less severely felt in Ireland, because the n.e. winds have aequired more warmth and moisture in their progress. It is on this account that the most salubrious spring climates possessed by England, Scotland, and Ireland are situated in the s.w of their respeetive countries. Thus, Queenstown, in the s.w. of Ireland, enjoys an average spring temperature as high as 50°.0, whieh is about the highest in the British islands, and nearly 3°.0 higher than the e. of Kent, which is nearly in the same latitude.

Since wheat ripens in these latitudes with a mean summer temperature of 56°.0, it follows that the climate of Ireland is quite sufficient for the successful cultivation of the finer sorts of grain, which are subjected to much less risk in backward seasons than is the case in north Britain, where the summer temperature is only a degree and a half from the extreme limit of wheat-cultivation. Also, considering its remarkably open winters, which lengthen out the period of grazing, its mild and genial climate through all the seasons, and its comparative freedom from droughts, it will be seen that its climate is equally well adapted for the rearing of cattle. These considerations, combined with the fertility of the soil, open up for Ireland, as far as the physical conditions are concerned, a prospect of great national prosperity, based on most remarkable, though as yet only partially developed agricultural resources.

Soil and Vegetation.—Until the middle of last eentury Ireland was almost exclusively a pasturing country, and in 1727 an attempt was made (unsuccessfully, however) to pass an aet compelling land-holders to "till five acres out of every hundred in their possession, and to release tenants to the same extent from the penal covenants in their leases against tillage." The result of this state of things is the wretchedly poor system of agriculture, from which Ireland still suffers largely. The natural fertility of the country is nevertheless great.

The extent under each of the principal crops in 1871, 1873, and 1884 is given in the following table;

Crops.	Extent cultivated in 1871. Acres.	1873. Acres.	1884. Acres.
Wheat	244,451	168,435	1,347,395
Oats	1,636,136	1,510,089	.....
Barley, bere, and rye	232,534	239,428	1,599,629
Beans and pease	10,913	12,872	.....
Potatoes	1,058,434	903,282	798,942
Turnips	327,035	347,904	394,031
Other green crops	126,220	121,234	35,443
Flax	156,670	129,432	89,197
Meadow and clover	1,829,044	1,837,483	1,962,700

The estimated produce in 1879 and 1880 was as under:

Crops.	Product. 1879.	Produce. 1880,
Wheat	1,799,000	2,228,000 cwts.
Oats	15,533,000	19,558,000 "
Barley	3,261,000	3,444,000 "
Potatoes	1,114,000	2,986,000 tons.
Turnips	2,058,000	4,340,000 "
Mangel and cabbage	635,000	964,000 "
Flax	3,063,000	4,508,000 stones.
Meadow and clover	..	..

Live Stock.—According to the census of 1851, the estimated value of the live stock was £27,737,393; for 1761, £43,435,385; and for 1871, £37,515,211. In 1881 the estimated value was £56,865,000.

Fisheries.—In her fisheries, Ireland is supposed to possess an almost inexhaustible mine of wealth, but, strange to say, they are much neglected. The surrounding seas abound with cod, ling, hake, herrings, pilchards, etc., and yet the Irish markets are extensively supplied with cured fish from Scotland and the Isle of Man. The number of vessels and boats engaged in the sea-fisheries in 1846 was 20,000, employing 100,000 men and boys; but in 1880 it had decreased to 6,459, employing only 24,548 persons. The *salmon fisheries* are improving annually, and in 1881 employed 11,427 men. Their estimated value is over £400,000 a year.

Manufactures.—According to McCulloch, "Ireland is not, and never has been a manufacturing country. Its unsettled turbulent state, and the general dependence of the population on land, have hitherto formed insuperable obstacles to the formation of great manufacturing establishments in most parts of the country; whilst the want of coal, capital, and skillful workmen, and the great ascendency of England and Scotland in all departments of manufacture, will, there is reason to think, hinder Ireland from ever attaining eminence in this department." Linen is the staple manufacture, of which Belfast and the surrounding districts of Ulster are the chief seats. In 1881 the flax manufacture employed some 927,300 spindles and 21,200 power-looms. The manufacture of woolen stuffs is limited to a few localities, as Dublin, Cork, Waterford, Queen's co., and Kilkenny. Silk and cotton manufactures are also carried on, but only to a comparatively inconsiderable extent. In 1875 the number of factories (cotton, woolen, worsted, flax, jute, and silk) in Ireland amounted to 235, employing 1,087,968 spindles, 21,056 power-looms, and 67,744 persons of both sexes; of these, 149 were flax-factories, employing 925,562 spindles, 17,827 power-looms, and 60,316 persons. A great source of employment for females has of late years sprung up in the n. of Ireland, in the working of patterns on muslin with the needle. Belfast is the center of this manufacture, which employs about 300,000 persons, chiefly females, scattered through all the counties of Ulster; and some localities of the other provinces. About 40 firms are engaged in the trade, and the gross value of the manufactured goods amounts to about £1,400,000. Silk manufactures, since their introduction by French emigrants in the beginning of the last century, have been almost entirely confined to Dublin; but poplin is now extensively manufactured there, and in a few other towns.

Commerce and Shipping.—The exportation of the agricultural produce of the country has always been the chief commercial business carried on in Ireland. By far the greater part of this trade is carried on with Great Britain. It cannot, however, be traced later than 1825, when the commercial intercourse between Great Britain and Ireland was assimilated by law to the coasting-traffic carried on between the different ports of England, except in the single article of grain.

The number of sailing and steam vessels, with their tonnage, registered in the ports of Ireland, in 1871, was 1776 vessels, tonnage 218,162; in 1880, 1658 vessels, tonnage 232,637.

Government.—The government of Ireland, since the union in 1801, is identical with that of Great Britain. It is represented in the imperial parliament by 28 members of the house of lords, and 103 of the house of commons. The executive government is invested in a lord-lieutenant, assisted by a privy council and chief secretary; and the law is administered by a lord chancellor, a master of the rolls, and twelve judges of the supreme court of judicature, which has two divisions—the high court of justice, with several subdivisions, and the court of appeal. County and municipal matters are conducted nearly as in England, with the exception of an armed national constabulary or police force of about 1,300 men, with 400 horses.

Religion.—A vast majority of the inhabitants of Ireland are Roman Catholics; but the Episcopal church, a branch of the Church of England, was the established church till Jan., 1871. It now exists independently as the church of Ireland. In 1881 the number of Roman Catholics was 3,951,888; of Protestants, 1,207,951.

Education.—Ireland possesses several universities: Dublin university (q. v.) was founded by queen Elizabeth in 1501; the queen's colleges of Belfast, Cork, and Galway, opened in 1849, are united in one university. The Roman Catholic university was

founded in 1854; and Maynooth college (q.v.) in 1795, for the education of Roman Catholic priests. There are also several Irish colleges and medical schools in connection with the London university. The primary schools of Ireland are mostly under the management of the "commissioners of national education." This system, established in 1833, proceeds on the principle that "the schools shall be open alike to Christians of every denomination; that no pupil shall be required to attend any religious exercise, or receive any religious instruction which his parents may not approve; and that sufficient opportunity shall be afforded to pupils of each religious persuasion to receive separately such religious instruction as their parents or guardians may think fit." The following table exhibits the progress of the system:

Years.	No. of Schools.	No. of Pupils.	Parliamentary Grants.
1834	1,106	145,521	£20,000
1840	1,978	232,560	50,000
1850	4,547	511,239	125,000
1860	5,632	804,000	270,722
1870	6,806	998,999	394,209
1871	6,914	1,021,700	408,388

In 1880 there were 7,590 national schools, with a total of 1,083,020 pupils; of whom 855,057 were Roman Catholic; 115,629 Presbyterian; and 102,218 Episcopalian children. The parliamentary grant in the same year was £722,366. Besides the national schools, the "church education society" had, in 1870, 52,166 scholars, of whom 44,662 belonged to the established church.

History.—According to ancient native legends, Ireland was in remote times peopled by tribes styled Firbolgs and Danauns, eventually subdued by Milesians or Gaels, who acquired supremacy in the island. The primitive inhabitants of Ireland are now believed to have been of the same Indo-European race with the original population of Britain. Although Ireland, styled *Iernis*, is mentioned in a Greek poem five centuries before Christ, and by the names of *Hibernia* and *Juverna* in various foreign pagan writers, little is known with certainty of her inhabitants before the 4th c. after Christ, when, under the appellation of *Scoti*, or inhabitants of *Scotia*, they became formidable by their descents upon the Roman province of Britain. These expeditions were continued and extended to the coasts of Gaul till the time of Laogaire MacNeill, monarch of Ireland (430 A.D.), in whose reign St. Patrick (q.v.) attempted the conversion of the natives. Although Christianity had been previously introduced in some parts of the island, Patrick encountered great obstacles, and the new faith was not fully established in Ireland till about a century after his decease.

From the earliest period each province of Ireland appears to have had its own king, subject to the *ard-righ* or monarch, to whom the central district called Meath was allotted, and who usually resided at Tara. Each clan was governed by a chief selected from its most important family, and who was required to be of mature age, capable of taking the field efficiently when occasion required. The laws were peculiar in their nature, dispensed by professional jurists styled *brehons*, who, as well as the poets and men of learning, received high consideration, and were endowed with lands and important privileges. Cromlechs, or stone tombs and structures, composed of large uncemented stones, ascribed to the pagan Irish, still exist in various parts of Ireland. Lacustrine habitations, or stockaded islands, styled *crannógs* or *crannoges* (q.v.), in inland lakes, also appear to have been in use there from early ages. Of articles of metal, stone, clay, and other materials in use among the ancient Irish, a large collection has been formed in the museum of the royal Irish academy at Dublin. It is remarkable that a greater number and variety of antique golden articles of remote age have been found in Ireland than in any other part of northern Europe; and the majority of the gold antiquities illustrative of British history, now preserved in the British museum, are Irish.

In the 6th c. extensive monasteries were founded in Ireland, in which religion and learning were zealously cultivated. From these establishments numerous missionaries issued during the succeeding centuries, carrying the doctrines of Christianity under great difficulties into the still pagan countries of Europe, whose inhabitants they surprised and impressed by their self-devotion and ascetism. Many students of distinction from England and the continent frequented Ireland, and received gratuitous instruction at this period. To these ages has been ascribed the origin of the peculiar style of art-ornamentation, specimens of which are still extant in Irish manuscripts, and which was long erroneously assigned to the Anglo-Saxons, who now appear to have been indebted to the Irish mainly for Christianity, and entirely for letters. Among the eminent native Irish of these times were Columba (q.v.), or Colum Cille, founder of the celebrated monastery of Iona; Comgall, who established the convent of Bangor, in the county of Down; Ciaran of Clonmacnoise; and Adamnan, abbot of Iona, and biographer of Columba. Of the Irish missionaries to the continent, the more distinguished were Columbanus (q.v.), founder of Bobio; Gallus of St. Gall, in Switzerland; Dichuill, patronized by Clotaire; and Ferghal, or Virgilius, the evangelizer of Carinthia. The progress of Irish civilization was checked by the incursion of the Scandinavians, commencing towards the close of the 8th c., and continued for upwards of 300 years.

Establishing themselves in towns on the eastern coast of Ireland, with the assistance of friendly native tribes, they continued to make predatory expeditions into the interior until their signal overthrow at the battle of Clontarf, near Dublin (1014 A.D.), by Brian, surnamed Borumha, monarch of Ireland. From the close of the 8th to the 12th c., Ireland, although harassed by the Scandinavians, produced many writers of merit, among whom were Ængus, the hagiographer; Cormac MacCullenan, king of Munster, and bishop of Cashel, the reputed author of *Cormac's Glossary;* Cuan O'Lochain; Gilla Moduda; Flan of Monasterboice; and Tighernach, the annalist. The Irish scholars who during these times acquired highest eminence on the continent were Joannes Erigena, the favorite of Charles the bald of France; Dungal, one of the astronomers consulted by Charlemagne; Dichuill, the geographer; Donogh, or Donatus, bishop of Fiesole; and Marianus Scotus. Of the state of the arts in Ireland during the same period, elaborate specimens survive in the shrine of St. Patrick's bell, the cross of Cong, in Mayo (12th c.); the Limerick and Cashel croziers, and the Tara brooch, all displaying minute skill and peculiar style. To much earlier times is assigned the *Book of Kells* (see KELLS), a Latin copy of the four gospels, in the library of Trinity college, Dublin, which Mr. Westwood has pronounced to be the most elaborately executed manuscript of early art now in existence, and of portions of which fac-similes are given in his work *Palæographia Sacra Pictoria.* Of the Irish architecture of the period examples survive at Cashel. The well-known round towers of Ireland are believed to have been erected about this era as belfries, and to serve as places of security for ecclesiastics during disturbances. The skill of the Irish musicians in the 12th c. is attested by the enthusiastic encomiums bestowed by Giraldus Cambrensis upon their performances. The Scandinavians have left behind them in Ireland no traces of civilization except coins struck at Dublin, Waterford, and Limerick, in which towns they were, for the most part, subject and tributary to the natives.

The first step towards an Anglo-Norman descent upon Ireland was made by Henry II., who obtained in 1155 a bull from pope Adrian IV., authorizing him to take possession of the island, on condition of paying to the papal treasury a stipulated annual revenue. Political circumstances prevented Henry from entering upon the undertaking till 1166, when Dermod MacMurragh, the deposed king of Leinster, repaired to him, and obtained authority to enlist such of his subjects as might be induced to aid him in attempting to regain his forfeited lands. Dermod, returning to Ireland in 1169, with the aid of his foreign mercenaries, and still more numerous Irish allies, succeeded in recovering part of his former territories, and in capturing Dublin and other towns on the eastern coast. After his death in 1171 the succession to the kingdom of Leinster was claimed by his son-in-law, Richard FitzGislebert, earl of Pembroke, surnamed "Strongbow." In the following year king Henry, with a formidable armament, visited Ireland, received homage from several of the minor native chiefs, and from the chief adventurers, granting to the latter charters authorizing them, as his subjects, to take possession of the entire island, in virtue of the grant made to him by the pope. The chief Anglo-Norman adventurers, FitzGislebert, Le Gros, De Cogan, De Lacy, and De Curci, encountered formidable opposition before they succeeded in establishing themselves on the lands which they thus claimed. The government was committed to a viceroy, and the Norman legal system was introduced into such parts of the island as were reduced to obedience to England. The youthful prince John was sent by king Henry into Ireland in 1184; but the injudicious conduct of his council having excited disturbances, he was soon recalled to England. John, when king, made an expedition into Ireland in 1210, to curb the refractory spirit of his barons, who had become formidable through their alliances with the natives. During the 13th c. the principal Anglo-Norman adventurers succeeded in establishing themselves, with the feudal institutions of their nation, in some parts of Ireland, by the assistance or suppression of native clans. The Fitzgeralds, or Geraldines, acquired almost unbounded power in Kildare, and east Munster, or Desmond; the Le Botillers, or Butlers, in Ormond or west Munster; and the De Burghs, or Burkes, in Connaught. After the battle of Bannockburn, the native Irish of the north invited over Edward Bruce, and attempted to overthrow the English power in Ireland. The court of Rome, at the instigation of England, excommunicated Bruce with his Irish allies; but although his enterprise failed of success, the general result was a comparative collapse of the English dominion in Ireland. The descendants of the most powerful settlers gradually became identified with the natives, whose language, habits, and laws they adopted to so great an extent, that the Anglo-Irish parliament passed, in 1367, the "statute of Kilkenny," decreeing excommunication and heavy penalties against all those who followed the customs of, or allied themselves with, the native Irish. This statute, however, remained inoperative; and although Richard II., later in the 14th c., made expeditions into Ireland with large forces, he failed to effect any practical result; and the power and influence of the natives increased so much that the authority of the English crown became limited to a few towns on the coast, and the district termed "the Pale," comprising a small circuit about Dublin and Drogheda.

In 1534 Thomas Fitzgerald, son of the viceroy of Henry VIII., revolted, but not meeting with adequate support from his Anglo-Irish connections, he was, after a short time, suppressed and executed. Henry received the title of "king of Ireland" in 1541,

by an act passed by the Anglo-Irish parliament in Dublin; and about the same period, some of the native princes were induced to acknowledge him as their sovereign, and to accept peerages. The doctrines of the reformation met little favor either with the descendants of the old English settlers or with the native Irish. About the middle of the 16th c. Shane O'Neill, a prince of the most powerful ancient family of Ulster, attempted to suppress his rivals, and to assume the kingship of that province, in which he was eventually unsuccessful; but after his death in 1567 his successor received the title of earl of Tyrone from Elizabeth. The attempts of the English government in Ireland to introduce the reformed faith and English institutions stirred up great dissensions in Ireland. Among the first to revolt was the earl of Desmond, after whose death, in 1583, his vast estates in Munster were parceled out to English settlers. Soon after, the chief clans of Ulster took up arms; and in opposing them the forces of Elizabeth, commanded by officers of high military reputation, encountered many reverses, the most serious of which was that in 1598 at the battle of the Yellow Ford, near Armagh, where the English army was routed and its general slain. Philip III. of Spain, at the solicitation of the Irish chiefs, dispatched a body of troops to their assistance in 1601, which, landing in the extreme south, instead of in the north, as had been expected, were unable to effect anything, and were constrained to surrender. Although Elizabeth was supported by numbers of native Irish, the northern chiefs, O'Neill and O'Donnell, held out till the queen's government came to terms with them in 1603, recognizing them as earls of Tyrone and Tirconnell. In 1608 these noblemen, having apprehensions for their personal safety, quitted Ireland unexpectedly, and retired to the continent. Their withdrawal enabled James I. to carry out that project of parceling out the n. of Ireland to Scottish and English settlers which is usually known as the "plantation of Ulster." The Irish took advantage of the contentions in England to rise in insurrection (1641) and massacre the Protestants. It is believed that nearly 40,000 fell victims to their fury. The country continued in a state of anarchy till 1649, when Cromwell overran it. At the revolution the native Irish generally took the part of James II., the English and Scotch "colonists" of William and Mary, and the war was kept up for four years (1688–92). From this time till 1778 history records little beyond the passing of penal statutes against the Roman Catholics. In 1778 parliament relaxed the stringent pressure of these acts; but the widely spread disaffection which they caused gave birth to numerous societies, resulting in the rebellion of 1798, which was not suppressed till 1800. On Jan. 1 of the following year the legislative union of Great Britain with Ireland was consummated, and from this period the history of the country merges in that of Great Britain.

IRELAND, Arms of. The insignia of Ireland have been variously given by early writers. In the reign of Edward IV., a commission appointed to inquire what were the arms of Ireland found them to be three crowns in pale. It has been supposed that these crowns were abandoned at the reformation, from an idea that they might denote the feudal sovereignty of the pope, whose vassal the king of England was, as lord of Ireland. However, in a MS. in the heralds' college of the time of Henry VII., the arms of Ireland are blazoned azure, a harp or, stringed argent; and when they were for the first time placed on the royal shield on the accession of James I. they were thus delineated: the crest is on a wreath or and azure, a tower (sometimes triple-towered) or, from the port, a hart springing argent. Another crest is a harp or. The national flag of Ireland exhibits the harp in a field vert. The royal badge of Ireland, as settled by sign-manual in 1801, is a harp or, stringed argent, and a trefoil vert, both ensigned with the imperial crown.

IRELAND, Church of, the Irish branch of the Episcopal church of England and Ireland, established by law in Ireland, according to the act of union passed Jan. 1, 1801. The established church of Ireland, considering itself the rightful successor of the mediæval Roman Catholic church, took possession of the dioceses, parishes, and church property, and for a long time retained the divisions then existing. The Roman Catholics, constituting a large majority (77 per cent) of the population, have always regarded as unjust the existence, in their country, of an established Protestant church in connection with that of England. Notwithstanding its small membership the church had, in 1833, 4 archbishoprics, 18 bishoprics, the income from which was estimated at from £130,000 to £185,000. In that year the first inroad was made upon the prerogatives of the established church in the reduction of the archbishoprics to two and the bishoprics to ten. In 1868, on motion of Mr. Gladstone, the English house of commons voted to disestablish the church of Ireland. The house of lords rejected the proposition. But so strong was the expression of public opinion against the continuance of the privileges of the Irish church that the royal commissioners on the revenues and condition of the church of Ireland, recommended in their report, July 27, 1868, important reductions as to its benefices. They suggested, among other changes, the abolition of four bishoprics and one archbishopric, and that all benefices with less than 40 Protestants should be suppressed. At the close of the year 1868 Mr. Gladstone became prime minister and introduced, in Mar., 1869, a new bill for the disestablishment and disendowment of the Irish church, which, after a long and earnest debate, passed both houses of parliament, and on July 26 received the royal assent. The bill, containing 60 clauses, is entitled,

"A bill to put an end to the establishment of the church of Ireland, and to make provision in respect to the temporalities thereof, and in respect to the royal college of Maynooth." The disestablishment was to be total and to take place Jan. 1, 1871, when the ecclesiastical courts and laws were to cease, the bishops to be no longer peers in parliament, the ecclesiastical commission terminate, and a new commission of church temporalities, composed of ten men, appointed, in which the whole property of the Irish church should be vested. Public endowments, including state grants or revenues (estimated at £15,500,000), were to be retained by the state, and private endowments, such as money given from private sources since 1660 (valued at £500,000), were to remain with the disestablished church. The vested interests connected with Maynooth college, with the Presbyterians who were receiving the *regium donum*, and the incumbents, were to be secured. The aggregate of the payments would amount to about £8,000,000, leaving £7,500,000 at the disposal of parliament, and which should be appropriated "mainly to the relief of unavoidable calamity and suffering." A general convention held in Dublin, 1870, adopted a constitution for the disestablished church, according to which the church is to be governed by a general synod, composed of a house of bishops and a house of clerical and lay delegates, meeting annually in Dublin. The house of bishops has the right of veto, but seven members must agree upon it to render it valid. The bishops are chosen by the diocesan convention, but if the convention fail to elect a candidate to a vacant see by a majority of two-thirds of each order, the election falls to the house of bishops. The primate or archbishop of Armagh is elected by the house of bishops from their own order. The property of the church is vested in a permanent representative body, composed of three classes—the *ex-officio* archbishop and bishops, one clerical and two lay representatives for each diocese, and the co-opted members chosen by the *ex-officio* and representative members, and equal in number to the dioceses. One-third of the elected members retire by rotation. The first convention adopted resolutions against the ritualistic practices introduced into the church of England. In 1884 the number of benefices was 1,304, of curates 354. The population connected with the church of Ireland, by the census of 1861, was 693,357 or 11.9 per cent of the whole population; in 1871, 683,295 or 10 per cent. As soon as the Irish act passed the temporalities commission took charge of all the property which had belonged to the established church, and sent out forms to be filled up by clergymen and others who had claims for a continuance of income. The whole number who had commuted at the end of 1873 was 6,162. The amount paid for claims up to Feb., 1873, was £8,259,673.

IRELAND, John, D.D. See page 882.

IRELAND, New. See New Ireland.

IRELAND, William Henry, 1777–1835; b. London, son of Samuel, an English engraver and author; was educated in France, and apprenticed to a conveyancer. Visiting with his father, 1795, Stratford-upon-Avon, he forged a lease or deed pretending it to be the autograph of the poet, which he said he had found among some old law papers. He perpetrated other forgeries, and produced the plays of *Vortigem* and *Henry the Second* as the plays of Shakespeare, which deceived many literary men. *Vortigem* was acted at Drury Lane theater, and both were published, 1799. He confessed the forgeries, abandoned his profession, and spent the remainder of his life in more reputable pursuits. He wrote several novels, plays, poems, etc. His *Confessions*, 1805, contain an account of all his forgeries.

IRELAND ISLAND, one of the Bermudas (q.v.).

IRELAND—LAND LEAGUE. The year 1879 was memorable in the history of Ireland for having witnessed the beginning of a condition of public distress which eventually assumed the proportions of a famine, and for having seen, based upon this condition, the first movements of the popular disturbances of the following year. The poor harvests of 1879 having rendered it impracticable for the tenantry of Ireland to fulfill their rigorous rental obligations, demands were made upon the landlords for reduction of rent, and public meetings to this end were held in various parts of the country, besides an immense gathering in Hyde park, London, the largest ever held in that place, which was attended by more than 100,000 persons. In Oct. the National Irish Land League was organized by Charles Stewart Parnell, a prominent agitator, who was made its first president. This organization was established to procure a reduction of rents through constant agitation in the first instance; to emphasize and enforce a general refusal to pay rent, if this demand were not complied with; and, finally, to bring about a radical change in the existing system of English land-laws, by which the relation of landlord and tenant should be abolished and in its place established a class of peasant proprietors. The various speakers who devoted themselves to advocating the new scheme were violent and even seditious in their utterances, and three of these—James Bryce Killen, Michael Davitt, and James Daly, proprietor of the Mayo *Telegraph*—were arrested on a charge of having used seditious language at a public meeting held Nov. 2, 1879, at Gurteen, co. Sligo. Meanwhile the distress in the country increased, and during the winter and spring of 1879–80 a condition of famine spread throughout the western part of Ireland, where the most appalling scenes were every day occurrences. Organized efforts for relief were made in England under the direction of the Duchess of Marlborough; and in the United States heavy subscriptions were col-

lected, and large sums of money expended in breadstuffs and provisions, which were sent to the starving Irish. In the height of the generous excitement Mr. Parnell visited America, and traveled over the country, speaking in the principal cities and towns in the interest of the Land League. This movement aroused considerable opposition and ill-feeling, which was emphasized by the course of the New York *Herald*, whose proprietor, after causing his journal to oppose the political enterprise of Mr. Parnell, started a subscription for the suffering Irish, heading the list with the sum of $100,000. Subscriptions poured in to the "*Herald*" fund with extraordinary liberality, and in a few weeks the amount subscribed reached the sum of half a million dollars, which was placed in the hands of a committee of gentlemen in England and Ireland, and by them distributed. The visit of the U. S. frigate *Constellation* to Ireland, loaded with grain and provisions, the gift of American citizens, was also an incident of this exciting period. The suffering in Ireland was greatly reduced by this timely aid, but the incendiary speeches of the Land Leaguers continued to excite public feeling, and agrarian outbreaks began to occur in different parts of the country. The assassination of Lord Mountmorris and other landlords by their exasperated tenants added fuel to the flames, and by the close of the year (1880) it was generally conceded that no landlord's life was safe, if he remained on his estates in Ireland, unless he acceded to the demands of his tenants. But by this time these had grown bolder—mainly through the instigation of the Land League—and whereas before they had been satisfied with a reduction of rent, they now clamored for proprietorship. So serious had the situation become, and so much were English statesmen and politicians impressed with the necessity for radical action, that plans for buying up the English proprietorship in Ireland and distributing it among the native farm-tenants were seriously recommended to parliament, and taken into consideration by some of the leading minds in England. The British government dispatched troops to the disturbed districts, and announced the policy of first restoring order before entering on measures of relief.—See FENIANS : HOME RULE.

IRENÆ'US, one of the most important of the ante-Nicene Christian writers, was an Asiatic by birth, but is known in history solely through his connection with the Greco-Gaulish church of southern France, of which he was a bishop. He was a scholar of Polycarp, through whom he may be regarded as having sat at the feet of St. John the apostle and evangelist. Irenæus was a priest of the church of Lyons under the bishop Pothinus, upon whose martyrdom, in the persecution of Marcus Aurelius in 177, he was himself elected to the same see, which he continued to govern for twenty five years. Irenæus is commonly believed to have suffered martyrdom at Lyons in the persecution under Septimius Severus in 202. His principal, indeed almost his only perfect, work is that which is commonly cited as *Adversus Hæreses* (Against Heresies). It is directed against the Gnosticism of his own age, and is most valuable as a picture of the doctrinal and moral condition of that age. Most of his other works also were doctrinal, but they are known only by description or by fragments. The earliest edition of the works of this father is that of Erasmus (Basel, 1526). They have been several times re-edited, the most prized edition being that of the Benedictine, Dom Massuet (Paris, 1710, and Venice, 1734).

IRE'NE, a celebrated Byzantine empress, was b. in Athens about 752 A.D. Her beauty and talent excited the admiration of the emperor Leo IV., who married her, 769 A.D. She is believed to have poisoned her husband, 780 A.D., after which event she became regent during the minority of her son, Constantine VI., then only nine years of age. A great worshiper of images—in fact, this species of idolatry had during the lifetime of her husband caused her to be banished from the imperial palace—she quickly began to plot for their restoration, and with this purpose assembled a council of bishops at Constantinople, 786 A.D., which, however, was broken up by the troops of the capital. A second council held at Nice in the following year was more successful, and image-worship was re-established in the eastern church. In 788 A.D. her army was defeated in Calabria by Charlemagne, who threatened the Byzantine empire. In 790 A.D. Constantine succeeded in taking the government out of her hands; but seven years after she caused him to be deprived of his eyes, and shut up in a dungeon, where he soon died. Still she was not free from anxieties. Her two favorites, Stauracius and Ætius, were constantly embroiled with each other, and their jealousies only ceased with the death of the former, 800 A.D. She now tried to secure her possession of the throne by a marriage with Charlemagne, but the Frank emperor had apparently no relish for a woman who had committed so many crimes, and the scheme proved abortive. Two years later her treasurer, Nicephorus, rebelled against her, and suddenly seizing her person, banished her to the isle of Lesbos, where she was forced to spin for a livelihood. Here she died of grief, 803 A.D. Irene was a wise, able, and energetic ruler; but her crimes were so great and unnatural that history can speak of her character as a whole only in the language of reprobation. The Greek church, however, on account of her zeal for image-worship, has placed her among its saints.

IRETON, HENRY, an English general of the period of the Commonwealth, was the eldest son of German Ireton, of Attenton, in Nottinghamshire, and was b. in 1610. He studied law at Oxford, but on the breaking out of the civil war offered his services to the parliament. His connection with Cromwell, whose daughter, Bridget, he married

in 1646, greatly advanced his interests. At Naseby he was taken prisoner by Rupert, but rescued some hours after, when Cromwell's Ironsides decided the fortune of the day. Ireton was one of the most implacable enemies of the king, and signed the warrant for his execution. When Cromwell passed over to Ireland to subdue that country he was accompanied by his son-in-law, on whose vigor, judgment, and tact he placed much reliance. Cromwell's presence, however, was soon required in Scotland, and the complete subjugation of Ireland was intrusted to Ireton. His career was brief, but successful. He was, however, unsparing in his severity. On Nov. 15, 1651, he died of the plague before the walls of Limerick. His remains were conveyed to England and interred in Westminster abbey; but after the restoration they were disinterred and burned at Tyburn. Ireton left one son and four daughters.

IRIARTEA, a genus of palms, all South American, having lofty, smooth, faintly ringed stems, and pinnate leaves with somewhat triangular leaflets. The leaf-stalks rise from a sheathing column. The PASHIUBA or PIZIUBA PALM (*I. exorhiza*), common in swamps and marshy grounds in the forests of the Amazon district, is remarkable for sending out roots above ground, which extend obliquely downwards, and often divide into many rootlets just before they reach the soil; the tree as it grows still producing new roots from a higher point than before, whilst the older and more central ones die, so that at last a lofty tree is supported as on three or four legs, between which a man may walk erect with a palm of 70 ft. high rising straight above his head. The outer wood is very hard, so as to be used for harpoons; splits easily, and into perfectly straight laths; is excellent for floors, ceilings, shelves, etc.; and is exported to North America for umbrella-sticks.

IRIDE'Æ, or IRIDA'CEÆ, a natural order of endogenous plants, mostly herbaceous, although a few are somewhat shrubby. They have very generally either root-stocks or corms. The leaves are generally sword-shaped, in two rows, and *equitant* (so placed that one seems to ride on the back of another). The perianth is 6-partite, colored, often very beautiful, in some regular, in others irregular. The stamens are three, with anthers turned outwards. The ovary is inferior; there is one style, with three stigmas, which are often petal-like, and add much to the beauty of the flower. The fruit is a 3-celled, 3-valved capsule. Almost 600 species are known, of which the greater number are natives of warm countries. They are particularly abundant in South Africa. A few are British. *Iris*, *gladiolus*, and *crocus* are familar examples of the order. Saffron is the principal economical product. Acridity is a prevailing characteristic, and some species are medicinal; but the corms and root-stocks of some are edible.

IRID'IUM (sym. Ir, eq. 99—in the new system, 198—sp. gr. 21.15) is one of the so-called noble metals. It is occasionally found native and nearly pure in considerable masses among the Uralian ores of platinum, but is usually combined with osmium as an alloy in flat scales. It is a very hard, white, brittle metal, which may be melted by the oxhydrogen blowpipe, or by the heat of a voltaic current. In its isolated form, it is unacted upon by any acid, or by aqua regia, but as an alloy it dissolves in the latter fluid. It forms three oxides, IrO, Ir_2O_3, and IrO_2, which pass readily into one another, and thus occasion the various tints which solutions of the salts of this metal assume. It was in consequence of these varying tints that the name of iridium, derived from *iris*, the rainbow, was given to this metal. Three sulphides and chlorides, corresponding to the oxides, have been obtained. This metal was discovered at the same time as osmium, in 1803, by Smithson Tennant.

IRIDOSMINE, a mineral alloy of iridium and osmium. It has a steel-gray color and metallic luster, and occurs in flattened grains about the size of a small pin-head. It is also found as a heavy gray powder. Its hardness is about equal to that of quartz, and its density ranges from 19.2 to 21.12. It is usually associated with platinum and with gold, bearing a small percentage to the latter. According to Dr. Torrey, the earlier assays at the assay office in New York yielded rather less than 1 oz. to $1,000,000 of gold, but this increased to 7 or 8 oz., and again diminished. The chief use of iridosmine is in tipping the nibs of gold pens.

I'RIS, in classic mythology, the daughter of Thaumas and Electra. She is described (in Homer) as a virgin goddess; but later writers state that she was married to Zephyrus, by whom she became the mother of Eros. She was employed, like Mercury, as the messenger of the gods, and to conduct female souls into the shades, as he conducted those of men. She is frequently represented on vases and in bas-reliefs as a youthful winged virgin, with a herald's staff and a pitcher in her hands. There can be no doubt that this myth originated in the physical phenomena of the rainbow, which was personified at first as the messenger of peace in nature.

The broad-colored ring in the eye is called the IRIS. See EYE.—IRIS is also the name of one of the planetoids (q.v.) discovered in 1847.

IRIS, or FLOWER-DE-LUCE, a genus of plants of the natural order *irideæ*, having the three outer segments of the perianth reflexed, the three inner arched inwards, and three petal-like stigmas covering the stamens. The species are numerous, chiefly natives of temperate climates. The YELLOW IRIS, or CORN FLAG (*I. pseudacorus*), is a well-known native of moist grounds in all parts of Britain, often spreading over a considerable extent

of land, and conspicuous even at a distance by its tall leaves and large deep-yellow flowers. The STINKING IRIS (*I. fœtidissima*) is very abundant in some of the southern parts of England, but does not extend far north. It has livid purple flowers. The leaves have a very disagreeable smell. The s. of Europe produces a greater number of species, as also does North America. The flowers of most of the species are beautiful. Some of them have received much attention from florists, particularly *I. xiphium*, sometimes called SPANISH IRIS; *I. xiphioides*, or ENGLISH IRIS; and *I. Germanica*, or COMMON IRIS, all corm-rooted species, and all European. Many fine varieties have been produced. The PERSIAN IRIS (*I. Persica*), the SNAKE'S-HEAD IRIS (*I. tuberosa*), and the CHALCEDONIAN IRIS (*I. Susiana*) are also much esteemed. The Persian iris is delightfully fragrant. The roots of all these species are annually exported in considerable quantities from Holland. Many other species are of frequent occurrence in flower-gardens.—The fresh root-stocks of *I. pseudacorus* are very acrid, as are those of many other species. Those of *I. Florentina*, *I. pallida*, and *I. Germanica* are orris root (q.v.). Those of *I. dichotoma* are aten in Siberia; those of *I. edulis* at the cape of Good Hope.

IRISH (GAELIC) LANGUAGE AND LITERATURE. The Irish (Gaelic) is one of the still living Celtic languages (see CELTIC NATIONS). The alphabet consists of the following eighteen letters—*a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, *i*, *l*, *m*, *n*, *o*, *p*, *r*, *s*, *t*, *u*, corresponding in their forms with the Roman characters of the 5th c. after Christ. In Irish there is no indefinite article; nouns are masculine or feminine, and anciently a neuter gender existed. The nominative and accusative are the same in form, as are also the dative and ablative; the nominative and vocative feminine, and the genitive and vocative masculine, always have similar terminations. Nouns substantive have five, and nouns adjective four declensions. Verbs are active, passive, regular, irregular, impersonal, and defective; their moods are indicative, consuetudinal, past indicative, imperative, infinitive, and conditional; regular active verbs have no subjunctive; the tenses are the present, consuetudinal present, preterite, cousuetudinal past, and future; in the tenses of the passive voice there is no distinction of number or person. Prepositions are rarely compounded with verbs or adjectives, instead of which the Irish use prepositions or adverbs placed after the verbs. Adverbial phrases composed of two or more parts of speech are very numerous both in ancient and in modern Irish. The simple conjunctions are few, but there are many conjunctional phrases. Interjections are numerous, and vary throughout the provinces. The regular versification of the Irish consists of four distinct meters, styled Oglachas, Droighneach, Bruilingeacht, and Dan Direach; of the last, there are five species, each distinguished by peculiar features. There are also classes of popular poetry possessing distinct linear and syllabic components. The best authorities on the Irish language are the *Irish Grammar*, by J. O'Donovan (1845); the *Grammatica Celtica* of J. C. Zeuss (1856); and *Irish Glosses* (1860), published by the Irish archæological and Celtic society.

The oldest existing specimens of the Irish language are to be found in sepulchral inscriptions in Ireland, and in the glosses or interpretations affixed to Latin words in documents transcribed by Irish ecclesiastics of the 8th and succeeding centuries, now preserved in some continental libraries. The principal ancient vernacular manuscripts in Ireland are *Leabhar na-h-Uidhre*, and the *Book of Leinster* (12th c.); the *Books of Ballymote, Lecan, and Dun Doighre*, or *Leabhar Breac* (14th c.); all compiled from older writings on historical and miscellaneous subjects. The most ancient manuscripts in Ireland containing original matter in the Irish language are the *Book of Armagh* (9th c.), and the *Book of Hymns*, of a somewhat later date, both ecclesiastical in their contents. The writings extant in the Gaelic language of Ireland consist of ecclesiastical documents, laws, bardic or semi-historic tales, historic tracts, genealogies, historic poems, treatises on medicine, translations from foreign authors, proverbs, compilations of the 17th c., popular poetry, political and satirical poems and songs, composed by native Gaelic writers in Ireland within the last century. Of the ecclesiastical documents the next in importance, after the *Book of Armagh* and the *Book of Hymns*, are the metrical Festologies of Ængus Ceile De (9th c.), the Martyrology of Tallaght (10th c.), and that of Marianus O'Gorman (12th c.). In this department there are also extant many lives of saints, monastic rules, devotional and religious poems. A large body of old Irish jurisprudence, known as the *Brehon Laws*, is preserved in manuscripts of the 14th and 15th centuries. Of the Irish bardic or semi-historic tales, numbers are extant ranging in date from the 12th to the 18th century. The principal Irish historic tracts are those on the tribute styled *Borumha*, the wars of the Danes with the Irish, and the wars of Thomond. Copious genealogies of the principal native families exist in various manuscripts, and from such sources MacFirbis, a learned Irish antiquary of the 17th c., made an elaborate compilation known as *Leabhar Genealach*, or the "Genealogical Book," now considered a high authority. The chief composers of poems on the history of Ireland were Eochadh O'Flin (10th c.), Gilla Caemhain, and Flan of Monasterboice (11th century). The most important ancient Irish annals are those of Tighernach, of Ulster, of Inisfallen, and of Connacht.

The Irish manuscripts on medicine contain original treatises by native physicians of the 14th and 15th centuries, with commentaries on the then known medical authors of Europe and in the east. The Irish translations from foreign languages are chiefly

versions of mediæval Latin and continental books—historic, scientific, romantic, and religious. Of original adages and proverbial sentences great numbers exist, of various ages. The privileges enjoyed by the Irish poets under the clan system enabled them to devote themselves to the production of elaborate metrical compositions, many of which possessed high excellence, and elicited the praises of the poet Spenser. During the wars against Elizabeth the bards were energetic in stimulating the chiefs to whom they were attached. The merit of the elegiac poem on the deaths of the earls of Tyrone and Tyrconnell by their bard Mac an Bhaird, who accompanied them in exile (1608 A.D.), attracted the attention of the critical lord Jeffrey, who became acquainted with it through Mangan's English version in the meter of the original. Among the native writers in Ireland after the establishment of the English dominion, in the reign of James I., was Dr. Geoffrey Keating, compiler of a history of Ireland in the Gaelic language, and author of religious treatises and poems. About the same period historical and hagiographical compilations were made by the O'Clerighs, the most important of which was that styled the *Annals of the Kingdom by the Four Masters*, extending from the earliest period to 1616 A.D., edited in seven large volumes (Dublin, 1848), with an English version and copious notes, by the late Dr. John O'Donovan, the ablest of Irish scholars. The Gaelic continued to be the language of the native rural population of Ireland during the 17th and 18th centuries, and many religious and romantic pieces were composed in it for popular use. Differing from the English settlers in religious and political sentiments, the native Irish found gratification in satirizing and ridiculing them in the Gaelic language, in which they composed numerous songs in favor of the Stuarts, and denunciatory of the Hanoverians and their adherents. Members of old Irish families who attained high distinction in military service on the continent, retained with pride the Gaelic tongue; it was also commonly spoken by the soldiers in the Irish brigades in France, and in the American army during the war of independence. Various attempts were made since the middle of the last century to print Gaelic documents, but the critical knowledge of the language in its archaic forms having fallen into abeyance, such publications proved entirely unsatisfactory, until the subject was taken up about 1830 by government, during the progress of the ordnance survey of Ireland. From this may be said to date the true Irish school of accurate historic and linguistic learning, which has since produced many valuable volumes, under the superintendence of the antiquarian section of the royal Irish academy and the Irish archæological and Celtic society. On the works issued by these two bodies, which for many years have included nearly all the most erudite scholars of Ireland, philological and historic students must now depend, as other publications on these subjects are, with few exceptions, illusory and misleading.

The Irish, in its modern forms, is still spoken commonly by the rural classes and native land-owners in Connaught, Munster, the remote parts of Ulster, the s. of Leinster, as well as in the islands off the western coast of Ireland. The provincial dialects vary considerably in words, pronunciation, and idioms. The Irish emigrants have carried their language across the Atlantic, and songs and poems in the Irish language and character occasionally appear in American newspapers. Professorships of the Irish language exist in Trinity college, Dublin; in the Queen's colleges at Belfast, Cork, and Galway; and in the Roman Catholic college at Maynooth. The chief collections of Irish manuscripts are those of the royal Irish academy and Trinity college, Dublin; numbers are also preserved in the British museum, in the Bodleian, and in some private libraries.

IRISH MOSS. See CARRAGEEN.

IRISH SEA, a continuation northward of St George's channel (q.v.), separates the n. of Ireland from the central districts of the United Kingdom. Between the coasts of Louth and Lancaster the Irish sea has a width of 120 m.; its greatest length between St. George's channel on the s. and the North channel on the n. is also about 120 miles.

IRISITE, a resinoid substance which is the principal constituent of the asphaltic mineral *grahamite*, which has been used successfully in making pavements (see PAVEMENT); also for gas-making. It was originally investigated by prof. Henry Wurtz. Grahamite is found in vertical fissures in horizontal rocks in Ritchie co., W. Va., and also at a place about 100 m. w. of Denver, Col. The mean of analyses of grahamite by prof. Wurtz gives: carbon, 78.66; hydrogen, 8.57; oxygen, 12.77; density, 1.145. The other ingredient of grahamite is viscosite (q.v.). Grahamite is black, and has a variable luster; is fusible under pressure, because of the viscosite constituent. It is very soluble in chloroform, benzole, bisulphide of carbon, and warm oil of turpentine. The viscosite is dissolved out of the grahamite by sulphuric ether or light petroleum naphtha. Irisite may be obtained from the residue by means of one of the grahamite solvents above mentioned, filtering and evaporating. When pure it is black, very brilliant, and infusible without decomposition. When its solutions are spread in thin films upon smooth surfaces, the most gorgeous rainbow hues are produced. If a mineral acid be added to a solution of irisite, the latter substance will coagulate, after which it is insoluble in all its former solvents, it having undergone a remarkable change. Analogous to grahamite is the mineral albutite, found in the province of New Brunswick, which also contains a small quantity of irisite and viscosite.

IRI'TIS is the term applied to inflammation of the iris. See EYE. The cavity across which the iris is stretched, and the iris itself, which projects into that cavity, and divides it into an anterior and a posterior chamber, are lined or invested by a membrane which resembles the larger serous membranes of the body, such as the pleura, peritoneum, etc., and consequently the inflammation of this membrane is of the adhesive kind. See INFLAMMATION. When it is added that the effusion of lymph may limit or entirely stop the movements of the iris, and may alter the form or even close up the aperture of the pupil, the serious nature of the disease will be at once perceived.

The *objective* symptoms of iritis (those which can be observed by the physician) are: 1. Redness of the eye, arising from vascularity of the sclerotic; 2. Change in the color of the iris. When lymph is effused in the texture of the iris, a gray or blue eye is rendered yellowish or greenish, while in a dark eye a reddish tint is produced. The brilliancy of the color of the iris also disappears. When the inflammation is very violent, or has been unchecked by remedies, suppuration may take place. 3. Irregularity and sometimes immobility of the pupil, produced by the adhesion of the back of the iris to the crystalline lens. The *subjective* symptoms (those of which the patient alone is conscious) are intolerance of light, dimness of vision, and pain in and around the eye.

The causes of iritis are various. The disease may arise from actual injury in surgical operations performed on the eye; from over-exertion, and too prolonged continuous use of the eye (thus it is common among needlewomen, engravers, and watchmakers); or from some constitutional taint, especially syphilis, gout, rheumatism, and scrofula.

The treatment of iritis varies to some extent according to the cause which induces it, but the great remedies are three. 1. *Blood-letting*, for the purpose of moderating the febrile disturbance, and of facilitating the operation of the second remedy, which is, 2. *Mercury*, which used to be given in large doses (such as two, three, or four grains, with a little opium, every four or six hours), but which is preferably given in small doses, such as two or three grains of hydrarg. c. cretâ, with a little hyoscyamus, two or three times in the 24 hours. This dose should be lessened as soon as the mouth begins to be tender, and by that time the lymph will be found to break up, and leave the pupil clear. 3. *Belladonna*. The pupil should be kept well dilated by the application of the extract of belladonna to the skin round the eye, or, far better, by the instillation into the eye of a weak solution of sulphate of atropine, with the view of preventing adhesion of the iris, or of breaking, or, at all events, of stretching and elongating any adhesive bands that may be formed; and thus of preventing any impairment of the movements of the iris, and any irregularity of the pupil after the inflammation shall have abated.

IRKUTSK', a government of eastern Siberia, bounded by the government of Jenisseisk, the government of Jakutsk and the Chinese empire, occupies an area of 307,990 sq. miles. The soil is partly fertile, partly hilly and marshy; the climate in general severe. The Baïkal and Nerchinsk mountains, with their numerous branches, give the country a high alpine character; besides these, the Saïán range extends along the southern borders, and the Jáblonovy or Apple range along the eastern. The principal rivers are the Lena, Shilka, Agún; the largest lake is the Baïkal (q.v.). The productions of the country are rye, wheat, barley, oats, rhubarb, hops; reindeer, sables, ermines, foxes, seals; fish—sturgeon, cod, silure; minerals—gold, silver, lead, jasper, amethysts, topazes, emeralds, yellow amber, rock-salt, and coal. The pop. of the government is (1880) 383,578, and consists of Buriats, Tunguses, and Russians. The inhabitants are for the most part employed in agriculture, and to some extent in fishing and hunting. As a local industry, the manufacture of an excellent oil out of stone-pine nuts deserves notice. The foreign commerce consists in the trade with China, carried on through Troitzko-Savsk and Kiachta (q.v.), and has risen to great importance in recent times.

The government of Irkutsk is divided into five districts—Irkutsk, Verkholensk, Balagansk, Nijneudinsk, and Kirensk. The capital is Irkutsk; the other towns are Telma, with a cloth-factory, Troitzko, Savsk, Kiachta, Kirensk on the Lena, Nijneudinsk, and Verholensk.

IRKUTSK, capital of the Russian government of that name, is the residence of the gov.gen. of eastern Siberia, and the seat of a bishop. It is situated on the right bank of the Angara, near its confluence with the river Irkut, in lat. 52° 17′ n., and long. 104° 26′ e., and is 3,842 m distant from St. Petersburg. The town is about 1200 ft. above the level of the sea, and enjoys a very healthy climate, though in winter the cold is so severe as to freeze mercury. The streets are straight and wide, but ill-paved, and the houses mostly built of timber. The town possesses 23 Greek churches, 9 hospitals, a theater, 16 schools (including a *gymnasium*), and 86 factories or works. Besides these the town contains a public library, a museum of natural history, and some other public institutions. The pop. is about 32,000, consisting mostly of Russians and Buriats. Irkutsk was founded in 1661 by a Cossack chief named Iwan Pochapof, and owing to its position on the great thoroughfare between eastern and western Siberia, between China and Russia, it soon became the commercial center of Siberia, especially for the tea-trade. The current of the Angara is so rapid that the strongest frosts cover it but seldom with ice. Nevertheless, it is navigable, and constitutes the mainway for the goods

bound for Kiachta by means of lake Baïkal, as well as for those coming from eastern Siberia, Russian America, and China to Irkutsk. The former are chiefly furs and metals; the latter, tea, meat, and fish from lake Baïkal. The communications between Irkutsk and Jakutsk, and the other northern towns of Siberia, are carried on by the river Lena. The manufactures of Irkutsk are purely local, and supply the half-nomad Buriats and Tunguses inhabiting the adjacent country.

IRNERIUS, or GARNIA, b. Italy, 11th c.; was professor of Roman law in the university of Bologna.

IRON (sym. Fe [Lat. *ferrum*], eq. 28—in the new system, 56—sp. gr. 7,844) occurs more abundantly than any other metal. In its native form it is chiefly found in meteoric stones (see AËROLITES), and in certain ores of platinum, and is consequently of comparatively rare occurrence, but the so-called iron ores—the oxides, sulphides, etc.—are very widely distributed. The most important of these ores are mentioned below.

Pure iron may be obtained by the ordinary method described below, and also by reducing the peroxide by means of hydrogen gas and heat, when it is obtained in the form of a fine black powder, or by heating the protochloride in a glass tube through which a current of dry hydrogen is passed. In this case, pure iron is deposited as a glistening mirror on the glass.

This important metal will be most conveniently considered under the three heads of

1. *Chemistry of Iron.*—Chemically pure iron is of so little general interest that we shall confine our remarks on the properties of this metal to those which are exhibited by bar or wrought iron. Its color is gray or bluish-white; it is hard and lustrous, takes a high polish, is fibrous in texture, and when broken across, exhibits a ragged fracture. It requires a very intense heat for its fusion, but before melting passes into a soft pasty condition, in which state two pieces of iron may, by being hammered together, be united or welded so completely as to form, to all intents and purposes, a single portion. At a red heat, it may be readily forged into any shape; but at ordinary temperatures it possesses very little malleability, as compared with gold and silver. In ductility, it stands very high, being barely exceeded by gold, silver, and platinum; and in tenacity, it is only exceeded by cobalt and nickel. Its susceptibility to magnetism is one of its most remarkable characteristics. See MAGNETISM. At a high temperature, it burns readily, as may be seen at the forge, or (more strikingly) when a glowing wire is introduced into a jar of oxygen, In dry air, and at ordinary temperatures, the lustrous surface of the metal remains unchanged; but in a moist atmosphere the surface rapidly becomes oxidized and covered with rust, which consists mainly of the hydrated oxide of iron. At a red heat, iron decomposes water, and liberates hydrogen, the oxygen combining with the iron to form the black or magnetic oxide (Fe_3O_4), which occurs in minute crystals. This is one of the ordinary methods of obtaining hydrogen.

The affinities of iron for most of the non-metallic elements are very powerful. The chief of the iron compounds are—

a. Oxides of Iron.—Iron forms four definite compounds with oxygen—viz. (1), the *protoxide* (FeO), which is the base of the green or ferrous salts of iron; (2), the *sesquioxide* or *peroxide* (Fe_2O_3), which is the base of the red or *ferric salts;* (3), the *black* or *magnetic oxide* (Fe_3O_4), which is regarded by some chemists as a compound of the two preceding oxides; and (4), *ferric acid* (FeO_3). The *protoxide* cannot be obtained in an isolated form, but it forms the base of various ferrous salts, and combines with water to form a hydrate (FeO,HO), which, on the addition of an alkali, falls in white flakes.

The most important protosalts of iron, or ferrous salts, are the carbonate, the sulphate, the phosphate, and the silicate.

Carbonate of iron (FeO,CO_2) exists naturally in various minerals, and may be obtained artificially by precipitating a soluble protosalt of iron with carbonate of potash or soda, when the carbonate falls in white flakes. On exposure to the air, it absorbs oxygen, and gives off carbonic acid, and is thus converted into the hydrated peroxide. *Sulphate of iron* (FeO,SO_3+7HO) is obtained by the solution of iron, or its sulphide, in dilute sulphuric acid; in the former case, there is an evolution of hydrogen, and in the latter, of sulphureted hydrogen. The reactions in the two cases are expressed by the equations,

$$Fe + SO_3,HO = FeO,SO_3 + H$$
$$FeS + SO_3,HO = FeO,SO_3 + HS.$$

On evaporation of the solution, the salt is obtained in clear bluish-green rhomboidal crystals, containing seven atoms of water. This salt is commercially known as copperas or green vitriol, and its various applications in technology are noticed in the article VITRIOLS, BLUE AND GREEN.

Phosphate of iron is obtained by precipitating a solution of a protosalt of iron with phosphate of soda, when a white precipitate of phosphate of iron is thrown down.

All these salts, especially the carbonate and sulphate, are extensively used in medicine.

Silicate and phosphate of iron occur naturally in several minerals.

The *peroxide of iron*, termed also sesquioxide, red oxide, or ferric oxide, is obtained in an anhydrous form by igniting the protosulphate, and is known in the arts under the names *colcothar*, *crocus of Mars*, or *rouge*, according to the degree of levigation to which

it has been submitted. It is employed for polishing glass, jewelry, etc., and is also used as a pigment. It occurs both in the anhydrous and in the hydrated form in various minerals.

The hydrated peroxide ($2Fe_2O_3,3HO$) is obtained by precipitating a solution of a persalt of iron, or of a ferric salt, with an excess of potash, ammonia, or alkaline carbonate. It falls as a yellowish-brown flocculent precipitate, which when dried forms a dense brown mass. This hydrated peroxide of iron, when freshly prepared and suspended in water, is regarded as an antidote in arsenical poisoning. Rust, as has been already mentioned, is a hydrated peroxide, combined with a little ammonia.

The most important of the persalts of iron, or ferric salts, are the neutral and the basic sulphate, whese formulæ are $Fe_2O_3,3SO_3$ and $Fe_2O_3,3SO_3.5Fe_2O_3$ respectively, the nitrate ($Fe_2O_3,3NO_5$), the phosphate, and the silicate. Of these, the neutral sulphate, the phosphate, and the silicate occur in various minerals. The nitrate, which is obtained by the solution of iron in nitric acid, is a useful medicinal agent.

The *black or magnetic oxide* and *ferric acid*, which has not been obtained in a free state, and is only known as a constituent of certain salts, must be passed over without comment.

b. Haloid salts of iron—the chlorides, bromides, and iodides—next require notice. There are two chlorides—viz., a protochloride (FeCl) and a perchloride or sesquichloride (Fe_2Cl_3). The latter may be obtained by dissolving peroxide of iron in hydrochloric acid. The tincture of the sesquichloride of iron is perhaps more generally employed in medicine than any other preparation of this metal. The protiodide is an extremely valuable therapeutic agent.

c. There are probably several *sulphides* or *sulphurets of iron.* The ordinary sulphide is a protosulphide (FeS). It occurs in small quantity in meteoric iron. It may be obtained artificially by the direct union of the two elements at a high temperature, or by the precipitation of a protosalt of iron by sulphide of ammonium. It exists in glistening masses, varying in color from a grayish yellow to a reddish brown. It is insoluble in water, but in moist air becomes rapidly oxidized into protosulphate of iron. With acids, it develops sulphureted hydrogen. The bisulphide of iron (FeS_2) is the *iron pyrites* of mineralogists, and the *mundic* of commerce. Under the latter name, it is used extensively in the preparation of oil of vitriol. There are also other sulphides of less importance.

The *protosalts* and the *persalts*, or the *ferrous* and the *ferric salts*, give totally different reactions with the ordinary tests. The solutions of the former have a greenish color and a peculiar metallic taste, while those of the latter are generally of a brownish-yellow color, and are very acid. Sulphureted hydrogen gives no precipitate with an acid solution of a ferrous salt, while it gives a milky precipitate of sulphur with a solution of a ferric salt. Potash, soda, and ammonia throw down a white hydrated oxide from the former, and a brown hydrated peroxide from the latter. Ferrocyanide of potassium gives with ferrous salts a white precipitate, which soon becomes blue, while with ferric salts it at once produces a blue precipitate, even in a very dilute solution. Tincture of galls (tannic acid) produces no immediate change of color with the ferrous, but a deep blackish-blue color (ink) with the ferric salts. Sulphocyanide of potassium produces no change with the ferrous, but gives a deep blood-red tint with the ferric salts. Succinate and benzoate of ammonia produce no precipitate or change of color with the former, while with the latter, if the solution is not too acid, they throw down pale reddish-brown precipitates.

2. *Manufacture of Iron.*—The increasing use of iron is a prominent characteristic of the present age, and every day sees some new application of it in the arts of life. Although the most useful of the metals, it was not the first known. The difficulty of reducing it from its ores would naturally make it a later acquisition than gold, silver, and copper (q.v.) See also Bronze, and Bronze Period. The reduction of the ore known as the black oxide of iron, however, has been carried on in India from a very early time.

In Europe the rich specular and other ores of Spain and Elba were much used during the Roman period; in Greece, also, iron was known, though, as among the Romans, its use was subsequent to that of bronze. We are informed, too, by the Roman historians that this metal was employed by the ancient Britons for the manufacture of spears and lances. The Romans, during their occupation of Britain, manufactured iron to a considerable extent, as is evidenced by the cinder-heaps in the forest of Dean and other places. The rude processes then in use left so much iron in the cinders that those of Dean forest furnished the chief supply of ore to 20 furnaces for between 200 and 300 years. In those early times, the iron ores were reduced in a simple conical furnace, called an air-bloomery, erected on the top of a hill, in order to obtain the greatest blast of wind. The furnaces were subsequently enlarged and supplied with an artificial blast. Charcoal was the only fuel used in smelting till 1618, when lord Dudley introduced coal for this purpose; but the iron-masters being unanimously opposed to the change, Dudley's improvement died with himself. It was not reintroduced till Abraham Derby, in 1713, employed it in his furnace at Coalbrook Dale. But as this method was not properly understood, the production of English iron declined with the change of fuel, till, in 1740, it was only three-fourths of what it had formerly been. About 10

years after this, however, the introduction of coke gave renewed vigor to the iron-trade, and then followed in rapid succession those great improvements in the manufacture which have given to the history of iron the interest of a romance. The introduction of Watt's steam-engine in 1770, the processes of puddling and rolling invented by Henry Cort in 1784, and the employment of the hot-blast by Neilson of Glasgow in 1830, have each been of inestimable service. The greatest improvement introduced into the iron manufacture in recent times is the process of Mr. Bessemer for the production of steel, patented in 1856 (see BESSEMER PROCESS). The "Siemens-Martin" method of making steel has also of late come into extensive use. An important new process for steel is patented by S. T. Thomas.

Iron ores are abundantly distributed over the globe; the chief kinds being—1. Magnetic iron ore; 2. Red hematite, specular, or red iron ore; 3. Brown hematite or brown iron ore; 4. Carbonate of iron, including spathic ore, clay ironstone, and blackband ironstone.

The ore richest in the metal is the *magnetic* (see MAGNETISM), or *black oxide of iron.* When pure it contains nothing but oxygen and iron, its chemical formula being Fe_3O_4, which gives 73 per cent of iron by weight. It occurs in dark heavy masses of black crystals, and is found in the older primary rocks. Sweden is famous for this ore, and for the iron produced from it, which is esteemed the best in Europe. The celebrated mines of Dannemora, in that country, have been constantly worked since the 15th century. Russia, too, has great iron works in the Ural mountains, which are supplied with this ore. So, also, have Canada and several of the American states, as Virginia, Pennsylvania, New Jersey, etc. The rock formations in which magnetic iron ore occurs very rarely contain coal, hence it is almost always smelted with wood-charcoal, which, as it contains no sulphur, is one great cause of the superiority of the iron produced from it.

Red hematite differs from the last only in containing proportionally a little more oxygen, its formula being Fe_2O_3, that is to say, 70 per cent of iron by weight. There are several varieties of this ore, but only two need be referred to. The first of these, *specular iron,* so called from its bright metallic luster, occurs in large and beautiful crystalline masses in the island of Elba, where it has been worked for more than 2,000 years, and is likewise found in many other parts of the world. It is of a steel-gray color, assuming a red tint in thin fragments and when scratched. The other variety is *kidney ore,* whose origin is still a curious problem, as its deposits occur sometimes in veins and sometimes in apparently regular beds. Its characteristic form is in large kidney-shaped nodules, with a fine radiated structure. This shape, however, is only assumed in the cavities of massive deposits. Red hematite is sometimes called bloodstone. It is used for polishing metals, and yields a blood-red powder, used as a pigment. This valuable iron ore is found in many countries, but in few places in greater abundance than at Whitehaven and Ulverstone, in the n.w. of England, where splendid masses of it occur, 15, 30, and even 60 ft. in thickness. These two districts produced, in 1880, about 2,758,000 tons of hematite.

Brown hematite, or brown iron ore, is a hydrated peroxide of iron, and has the same composition as red hematite, except that it contains about 14 per cent of water. It is generally found massive, more rarely crystalline, and a variety occurring in small rounded nodules is called pea iron ore. When mixed with earth or clay, it forms the pigments yellow ocher and brown umber. Brown hematite is now an important ore in Great Britain, about 2,000,000 tons being annually raised. It occurs in different geological formations, chiefly in Devonshire, the forest of Dean, South Wales, and in the co. of Antrim in Ireland; also in an earthy form in Northamptonshire. It is the ore chiefly smelted in France and Germany.

Bog iron ore is a variety of brown hematite, usually containing phosphorus, which occurs in marshy districts of recent formation.

Carbonate of iron, when found in a comparatively pure and crystallized state, is known as *spathic, spathose,* or *sparry iron ore;* but when impure and earthy, as *clay ironstone* and *blackband ironstone.* Spathic ore was little worked in England previous to 1851, soon after which it was discovered in Somersetshire. It forms mountain masses in various parts of Prussia and Austria, and is now much in demand to yield the spiegeleisen required in the Bessemer process. In its purest form it contains 48 per cent of iron; and in color it varies from white to buff or dark brown, some specimens of it taking a beautiful polish, and looking like marble. The clay and blackband ironstones are essentially mixtures of carbonate of iron with clay, blackband having also a considerable proportion of coaly or bituminous matter. These dull earthy-looking ores occur abundantly in Great Britain, and form, after coal, the greatest of her mineral treasures. Fully one-third of all the ore mined in the country is obtained from the coal-measures, where fortunately both the fuel and the limestone, indispensable for the reduction of the iron, are also found. The ore occurs as balls or nodules in the shales, or in continuous beds. Some of these seams are full of fossil shells, and the ore is then called "musselband" ironstone.

Formerly, the three great iron districts of Britain were South Staffordshire, South Wales, and Central Scotland, each producing nearly equal quantities, and together yielding about four-fifths of the total produce of the country. Now, however, the South

Staffordshire field is becoming exhausted, its produce being only about a fourth of what it was, while that of the South Wales and Scottish districts has increased, and is now yielding annually, the former a million and a quarter, and the latter more than three million tons of ore. North Staffordshire, Shropshire, Derbyshire, and the West Riding of Yorkshire, are the principal remaining districts yielding ores from the carboniferous beds. The iron from the West Riding ore is the best in Britain as regards quality.

There is yet another great iron district, yielding an ore belonging to a more recent formation than the carboniferous—namely, the lias. This deposit, which scarcely more than 30 years ago was unknown, is now producing iron to the enormous amount of 1,375,000 tons per annum. It is the ironstone of the Cleveland hills, in the n.e. of Yorkshire, which, from its resemblance to common sandstone, passed unnoticed till 1847. About that time, isolated blocks of it, found on the sea-coast, were discovered to contain about 30 per cent of iron. On further examination of the district these were proved to be detached pieces of a massive bed, no less than 15 ft. thick, which could be traced for many miles along the sides of the hills. Some idea of the value of this vast deposit of iron ore will be found in the fact, that the ironstone seams of the coal-measures seldom exceed 20, and are worked as low as 8 inches in thickness. Another mass of ironstone of great thickness, also belonging to the lias beds, was more recently discovered in North Lincolnshire. In the oolite, too, beds of brown iron ore have been discovered in several counties, but chiefly in Northamptonshire, where it has been worked with so much spirit, that about a million tons of ore per annum are now raised.

To those remarkable discoveries may be added that by Mr. Rogers of Abercarn, who first detected, some years ago, the value of the spathic ore in the Devonian rocks of Somersetshire, now largely worked. We may state, too, that hematite has recently been mined to some extent in the Shetland islands. About 420,000 tons of what is called "burnt ore" are now yearly obtained in Great Britain from the residue of iron pyrites (sulphide of iron) which has been burned to yield its sulphur for the manufacture of sulphuric acid. Fully 1,000,000 tons of iron ore are now annually imported.

Before proceeding to describe the manufacture of iron, we give two analyses of British ores: the first is by Mr. J. Spiller, taken from a series published in the *Memoirs of the Geological Survey*, and the second is by Dr. Murray Thomson.

CLAY IRONSTONE, CHIEFLY A CARBONATE OF IRON, BLACK-BED MINE, LOWMOOR, YORKSHIRE.

Protoxide of iron	36.14
Peroxide of iron	0.61
Protoxide of manganese	1.38
Alumina	0.52
Lime	2.70
Magnesia	2.05
Carbonic acid	26.57
Phosphoric acid	0.34
Sulphuric acid	trace
Bisulphide of iron	0.10
Water, hygroscopic	0.61
" combined	1.16
Organic matter	2.40
Insoluble residue, chiefly silica and alumina	25.27
	99.85
Metallic iron per cent	29.12

SCOTCH BLACKBAND.

Protoxide of iron	36.47
Protoxide of manganese	4.16
Alumina	3.69
Lime	2.75
Magnesia	.77
Carbonic acid	23.26
Phosphoric acid	trace
Silica	9.26
Organic (coaly) matter	17.92
Water	.93
Sulphur	.66
	99.87
Metallic iron per cent	28.36

It will be noticed that in the case of these ores the impurities are rather numerous. Nevertheless, the modes of preparing and smelting them are somewhat rude and simple, as the low price of iron will not permit of its ores being treated with the same care as the ores of lead, copper, tin, and some other metals.

Iron ore is still reduced in the s. of Europe by the old and imperfect process of the Catalan forge, not unlike a common smith's forge. In Great Britain, however, as well as in all other countries where iron is largely smelted, the blast-furnace is now universally employed, by means of which the metal is obtained in the state of crude or cast iron. For the finer kinds of iron, charcoal is the fuel employed, because, unlike coal or coke, it contains no sulphuret of iron or other injurious ingredients. The Russian and Swedish furnaces smelt with charcoal, and on this, as much as on their pure ores, depends the high reputation of their iron. A solitary charcoal-furnace at Ulverstone in England, and another at Lorn in Scotland, are still working—the only relics of times past, when this was the only fuel employed.

As a preliminary process to the actual smelting in the blast-furnace, clay and blackband ironstones are generally roasted. This is accomplished by breaking the ore into small pieces, spreading it in open heaps on the ground, and mingling it more or less with small coal according to the nature of the ore. Blackband commonly contains enough of carbonaceous matter to burn without the addition of coal. The pile, which may contain from one to several thousand tons of ore, is lighted at the windward end, and burns gradually along, aided by occasional fires in the sides, till the whole heap has undergone

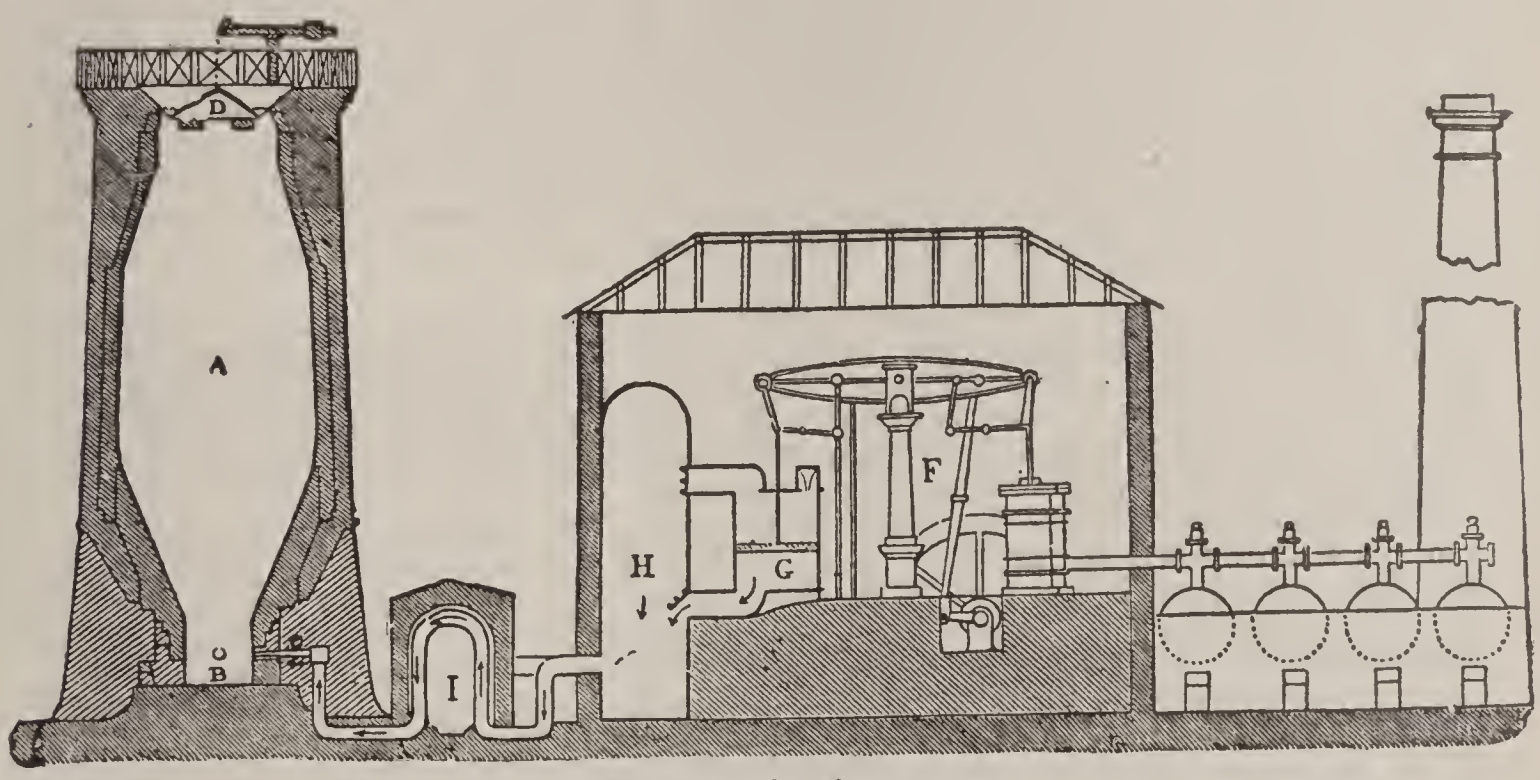


Fig. 1. Hot Blast-furnace.

calcination, the time required for this purpose being generally about a month. Sometimes the operation of roasting is performed in close kilns, instead of open heaps, a mode by which the ore is considered to be more uniformly roasted, and with considerably less fuel. Of late years, the kilns are often heated by the waste gases of the blast-furnace. By calcination, clay ironstone loses from 25 to 30, and blackband from 40 to 50 per cent of its weight, the loss consisting chiefly of carbonic acid and water, but sulphur and other volatile substances are also dissipated in the process. The roasting also converts the protoxide and carbonate of iron into peroxide, which prevents the formation of slags of silicate of iron, such slags, owing to the difficulty of reducing them, causing a loss of iron. In this country rich ores like the magnetic or red hematite are not subjected to calcination, but they are so in Sweden.

The older type of blast-furnace consists of a massive tower of stone or brick-work strengthened with iron binders; the newer plan is to build it of comparatively thin brickwork, and surround it entirely with strong iron plates. In either case an inner lining of refractory fire-brick is given to it, which is separated from the outer portion of the wall by a narrow space filled with sand, Internally they vary much in form, but perhaps the barrel shape is the most prevalent, and most of them contract towards the bottom in the shape of an inverted cone. Recent ones have been built from 80 to 100 ft. in height, instead of not more than 60 as formerly. The blast-pipe, with its tuyere-branches, surrounds the hearth, and on one side there is a recess and openings for running off the metal and slag. See Blast-furnace.

Fig. 1 is a sectional view of a hot blast-furnace, with the blowing-engine and other appliances, which is taken, with some modification, from Mr. Fairbairn's work on iron.

It may be well to state here that one engine usually supplies the blast to several furnaces. A is the body of furnace; B the hearth, above which are placed the tuyeres, C; D is the bell and cone arrangement, around which there is a gangway to enable the workmen to feed the furnace. The blowing-engine is shown at F. Air is forced into the furnace by means of the blowing cylinder, G, from which it passes into the receiver, H, and thence along a pipe into the heating-oven, I. Here a large surface of pipe is exposed, in arch-shaped rows, to the fire, which heats the inclosed air to from 600° to 1000° F. At some temperature within this range it enters the lower part of the furnace by means of the tuyeres, C. Some of the larger blowing-engines discharge 60,000 cubic ft. of air per minute, under a pressure of 3½ lbs. per sq. inch. See BLOWING-MACHINES.

The bell and cone at D is for the purpose of closing the mouth of the furnace so as to save the "waste gases," chiefly carbonic oxide, which are allowed to escape in open-mouthed furnaces (see BLAST-FURNACE). These are conveyed away by pipes from openings just under the cone at D, and are turned to raise steam, heat the blast, etc.

The operation of smelting is thus performed: The roasted ore, coal, and lime (flux) are either hoisted, or, if the nature of the ground permits, moved along a platform or gangway to the gallery near the top of the furnace, and fed into it at intervals through the openings in the side, when the mouth is open, or by lowering the cone D, when it is closed. We may here state that the furnace is kept continually burning except when under repair. The materials are of course raised to a very high heat, and gradually fuse into a softened mass. The clay of the ironstone then unites with the lime to form a coarse glass or slag; the oxide of iron at the same time gives up its oxygen to the fuel, and allows the metal itself to collect on the hearth at the bottom of the furnace, united with from 3 to 5 per cent of carbon, which it takes from the fuel, forming the variety called cast-iron. Every 12, and sometimes every 8 hours, the metal is run off from the furnace, by means of a tap-hole at the bottom of the hearth, into rows of parallel molds, called pigs, which are formed in sand, hence the name "pig-iron." The slag which floats on the melted iron is run off by an opening at the top of the hearth. If the furnace is working well, the slag should be of a light-gray color; a dark-brown or black color shows that too much iron is passing into it.

The quantity of materials necessary to yield a ton of pig-iron may be taken roundly as follows: 2 tons of calcined ironstone; 2½ tons of coal, of which about 8 cwts. are required for the blowing-engine and hot-air pipes; and from 12 to 16 cwts. of broken limestone. The proportions, however, vary in different districts according to the nature of the fuel and ore. The weekly produce of a single blast-furnace varies extremely—from under 100 to more than 500 tons in some of the larger furnaces.

Different districts classify their pig-irons in slightly different ways, but, as a rule, No. 1 to No. 4 are known as gray iron. No. 1 is largest and brightest in the grain, brings the highest price, and is best adapted for fine castings. Nos. 2, 3, and 4 become successively less in the grain, of a duller luster, and lighter in color, but up to No. 3 are known as foundry pigs. After No. 4 the metal ceases to be gray, and though higher numbers are sometimes employed, the other qualities are more usually known as forge, mottled, and white pig-irons. Gray iron has its carbon partly in the chemically combined, but chiefly in the uncombined or graphitic state, and requires a higher temperature to melt it than white iron, though very fluid when melted. White iron has its carbon wholly in the combined state, and is chiefly available for conversion into malleable iron. Hematite pig-iron suitable for making Bessemer steel has an exceptionally high value.

The hot-blast process which has been described above was introduced in 1830 by Mr. James B. Neilson of Glasgow, and has been productive of very remarkable effects on the iron trade. The whole invention consists in simply heating the air blown into the furnace, and yet the saving of fuel by this is about one-half, and the production of iron, since it came into use, has enormously increased. The "cold-blast" is still, however, to a limited extent employed, and produces the strongest iron, though necessarily at a much higher cost. The difference in quality appears to be caused by the greater heat in the case of the hot blast facilitating the passage of impurities into the iron.

Of late years much attention has been given to plans for saving fuel in the blast-furnace. Previous to the introduction of the hot-blast as much as 8 tons of coal, as coke, were consumed for every ton of pig-iron made. Even when this is reduced to under 3 tons of raw coal per ton of pig-iron, fully three-fourths of all the heat produced is still wasted in open-mouthed furnaces. The method of saving the waste gases by closing the mouth of the furnace, as shown in fig. 1, now generally adopted when coke is used, is attended with so much economy, that, in the Cleveland district alone, 600,000 tons of coal per annum are saved by adopting it. There being a difficulty in closing the mouth of the furnace when raw coal is used, Mr. Ferrie of Monkland, a short time ago, patented a self-coking blast-furnace, by which, among other advantages, the gases can be saved. It has now been in use for some years in Scotland, and produces a ton of pig-iron with 34 instead of 53 cwts. of coal previously required. Raising the temperature of the blast to from 900° to 1000° F. has also been attended with a saving, and so likewise, in some districts, has an addition to the height of the furnace.

We pass now to the consideration of malleable or wrought iron. It differs from cast-

iron in being almost free of carbon. The great object in the processes adopted for the conversion of cast into malleable iron, accordingly, is to deprive the former of its carbon. But it is also very desirable to get rid of deleterious ingredients, such as silicon, sulphur, and phosphorus, which latter are generally present in minute quantities in the cast-iron. The ordinary precesses for the manufacture of malleable iron are *refining*, *puddling*, *shingling* or *hammering*, and *rolling*. The refinery is shown in section in fig. 2. It consists of a flat hearth, A, covered with sand or loam, and surrounded with metal troughs, B, through which a stream of water is constantly flowing, to keep the sides from melting. C are the tuyeres in connection with the blowing-engine. The cast-iron is melted with coke on the hearth, and a blast of air kept blowing over it, which causes its carbon to unite with the oxygen of the air, and pass off as carbonic oxide gas. Oxygen also unites with silicon to form silica, and with iron to form the oxide. The silica of the sand uniting with oxide of iron, produces a slag of silicate of iron. The refined metal is finally run out in cakes on a bed of cast-iron, kept cool by a stream of water. Being only partially decarbonized by this process, it is next broken up for the puddling furnace. About 10 per cent of iron is lost in the refinery.

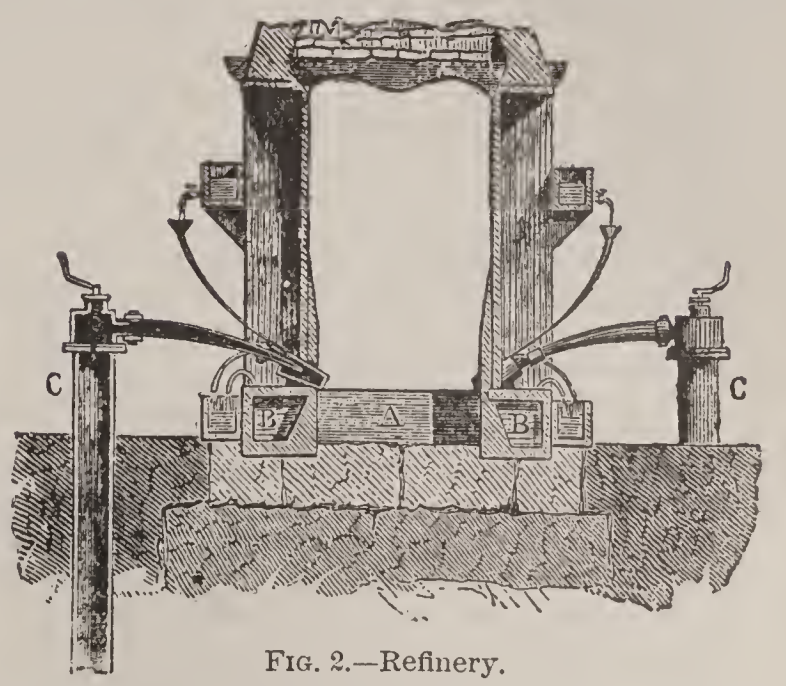


Fig. 2.—Refinery.

Fig. 3 shows a puddling furnace in longitudinal section. B represents the hearth; A, the grate or fire-place; and C, the chimney, which has a damper at the summit to regulate the draught. The grate is separated from the hearth by means of a bridge, D, which prevents the direct contact of the fuel with the iron. White pig-iron, or at least such kinds as contain carbon in the combined state only, are best suited for puddling, because they become pasty, and so more easily worked than gray iron containing graphitic carbon, which does not soften into this condition previous to fusion. It is only in some districts that the "refining" process is much used, in others a portion only of the puddling furnace charge is refined; and in making inferior kinds of malleable iron, the pig-iron is not previously refined at all. There are two ways of puddling now practiced: the first or older way, best applicable to refined iron, is called *dry puddling*, and in it the decarburization is produced chiefly by a strong current of air passing through the furnace; the second, or newer process, is called *wet puddling* or *boiling*, in which case the oxidizing of the carbon is effected chiefly by hematite, magnetic ore, basic slags, and other easily reduced materials, but to some extent also by the air.

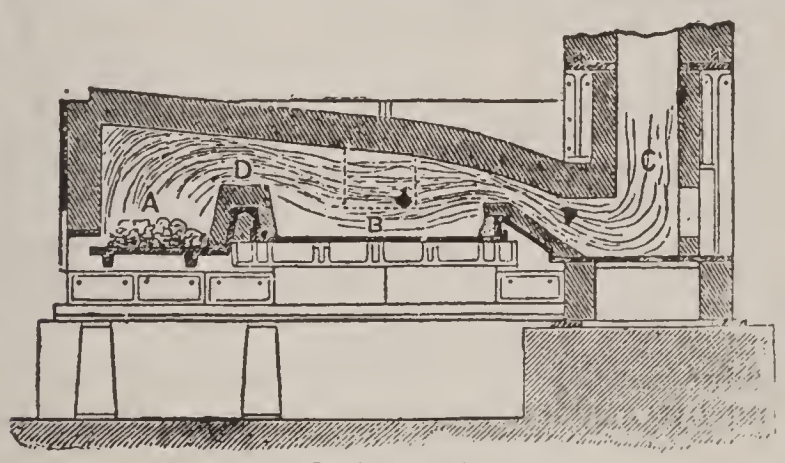


Fig. 3.—Puddling Furnace.

The operation of puddling, though differing in its details according to circumstances, is in a general way conducted as follows: A charge of from 4½ to 5 cwts. of metal, including some hammer slag and iron scale, is placed on the bed of the furnace while still hot from previous working. In about half an hour, when the furnace is in working order, the charge is melted, and is then stirred or "rabbled" for a considerable time, when it begins to "boil" by the formation and escape of carbonic oxide, which forms jets of blue flame all over the surface. Gradually, as the carbon of the pig-iron is more and more oxidized, pasty masses of malleable iron separate, and these are removed in balls commonly weighing about 80 lbs., but sometimes larger. About an hour and a half is required to work off a charge, and it takes from 22 to 26 cwts. of pig-iron to produce a ton of malleable iron. Siemens's regenerative gas-furnace, in which inferior fuels can be utilized, is applied to puddling as well as to other metallurgical processes; but our space is too limited to give any of its details, or to describe the more recent revolving puddling furnace of Mr. Danks, which is the most promising of any of the attempts yet made to puddle iron by mechanical means.

The process immediately following the puddling or boiling is called "shingling," and consists in hammering the puddled balls with either the helve or steam-hammer, or in passing them through a *squeezer* till they are sufficiently consolidated, and the greater part of the cinders forced out. For a description of the steam-hammer, which is much used for heavy forgings as well as for shingling, see that head. Puddled balls which

have undergone shingling are called *slabs* or *blooms*. These are next passed through heavy rollers termed "forge" or "puddle-bar rolls," and reduced to the form of a flat bar. For all the better kinds of iron the bars thus treated are cut into short lengths, piled together, reheated in a furnace, and again passed through the forge rolls. Once more the iron is cut, piled, and heated, and then passed through the "mill-train," consisting of what are termed the "bolting" or "rough rolls," and finally through the "finishing rolls." Both these sets of rolls in the case of plates and sheets are plain, but in the case of bars are grooved, so as to form them into the required shape, such as flat, square, round, octagonal, or T-shaped iron.

There is still another important variety of iron, viz., *steel*, the manufacture of which remains to be described. Steel differs from malleable iron in containing a varying proportion of carbon, usually from .5 to 1.8 per cent. When rich in carbon, it closely resembles cast-iron in composition, except that it is more free from impurities. Steel can be made by adding carbon during the direct reduction of a pure iron ore in a furnace or crucible, but the results of this method are scarcely ever uniform. The finer kinds of steel are still made by the old cementation process—that is, by the roundabout plan of first converting cast into malleable iron, by depriving the former of its carbon, and then adding carbon again by heating the iron with charcoal (see Blister Steel). In making any kind of steel, however, the getting rid of silicon, phosphorus, and sulphur is as important, and a matter of more difficulty than the securing of any required proportion of carbon.

As blistered steel is full of cavities, it is necessary to render it dense and uniform, especially for the finer purposes to which steel is applied. By one method it is converted into what is called "shear steel." This is done by breaking the bars of blister steel into short lengths, heating them in bundles, and partially welding with a forge-hammer. The rod so formed is heated again, and now brought under the action of the tilt-hammer. Here, by a succession of blows, it is formed into bars, which are much more compact and malleable than blister steel, and consequently better fitted for edge-tools and the like. If the single-shear steel is doubled upon itself, and again welded and drawn into bars, it is called double-shear steel. By another method, viz., that of melting the blister steel in fire-clay crucibles, and casting it into ingots, "cast-steel" (q.v.) is made. This is the best kind of steel, being finely granular, homogeneous, dense, and well adapted for the finest cutting instruments.

Steel is now largely made directly from pig-iron by puddling, much in the same way as that process is applied to the production of malleable iron (see Krupp's Steel). By another plan (Uchatius's process), pig-iron is granulated and heated in a crucible with the oxides of iron and manganese, and fire-clay, the result being cast-steel. This process has succeeded well in Sweden. The Siemens-Martin process consists in melting pig-iron along with malleable iron and Bessemer steel scrap, about 7 per cent of spiegeleisen being added towards the end of the process. The operation is conducted in the Siemens regenerative furnace, and the product in this case is also cast-steel.

There are also several modes of manufacturing steel direct from the ore, such as by the old way in the Catalan forge, and by Chenot's process, in which hydrocarbons are used.

Bessemer's method of producing malleable iron directly from pig-iron is altogether a failure. Steel, however, is successfully and largely made by his process, which consists in blowing air through molten pig-iron till the whole of the carbon and silicon is removed by oxidation, and then introducing into the melted iron a given quantity of spiegeleisen (a peculiar kind of cast-iron), containing a known percentage of carbon (see Bessemer Process).

It would appear from the results of recent experiments made on the large scale at Middlesborough, that Messrs. Thomas & Gilchrist have succeeded, by a comparatively simple device, in practically eliminating the phosphorus from Cleveland pig-iron during the conversion of the latter into steel in the Bessemer converter. The great importance of this discovery will be at once understood when we state that the Cleveland iron is the cheapest in Great Britain, and that the Cleveland ore yields one-fourth of all the iron made in the country. Hitherto it has not been remunerative to make steel from this pig-iron on account of the exceptionally high percentage of phosphorus it contains, and the difficulty there has been of removing an ingredient so deleterious to steel. Success, however, has at length been achieved by obtaining, through the use of lime and oxide of iron, a basic slag in the converter, and by lining this vessel with bricks made chiefly of magnesian limestone fired at a very high heat. A basic lining is thus given to the converter instead of the ordinary siliceous one, which is acid, and so a base is furnished with which the phosphoric acid can combine without the certainty of the lining being eaten away by the basic slag, as would be the case when this lining is siliceous. It is only as respects the nature of the slag in the converter, and the kind of lining used for this vessel, that Thomas & Gilchrist's mode of making steel, as far as it has yet been tried, differs from Bessemer's; except that for the latter a high-priced pig-iron is required. Of course steel can be made by the new process from other low-priced irons besides Cleveland.

We will now take a glance at the properties of each of the three principal kinds of iron, and the purposes to which it is chiefly applied. Cast-iron, as the crudest, cheapest, and most fusible, is used for the heavy portions of engineering work, such as bed-plates for machines, cylinders, columns, cisterns, low-pressure boilers, water and gas pipes,

rollers, girders, and the like. A large quantity is consumed in the manufacture of "hollow-ware," which includes pots, pans, and other cooking-vessels. For all kinds of ornamental objects, again, it is almost exclusively used, because here its property of being readily cast into molds gives it a great advantage on the score of cheapness.

Malleable iron differs considerably in its properties from cast-iron. The latter is practically incompressible, but it can be comparatively easily torn asunder. Malleable iron, on the contrary, possesses great tenacity; it is, moreover, very malleable and ductile, especially at a high temperature, so that it can be rolled into sheets as thin as paper, or drawn into the finest wire. Further, it possesses the valuable property of welding—that is, two pieces can be completely united together by hammering at a white heat. Malleable iron is largely employed for the innumerable variety of articles included under the general term "hardware," such as locks, keys, hinges, bolts, nails, screws, wire-work, and the so-called tin-plate, which is merely sheet-iron dipped in melted tin. It is the mainstay of the railways and the electric telegraph, and has almost displaced timber as a material for steamships and sailing-vessels. It is also much used for roofs and bridges of large size. Rolled armor-plates for war-ships and fortifications are now made of malleable iron from 5 to 22 in. thick.

Steel possesses several valuable properties which do not belong to either cast or wrought iron. It is harder, denser, and whiter in color. It is also more elastic, takes a higher polish, and rusts less easily. Like malleable iron, it is also weldable. But its most characteristic property consists in its admitting of being tempered at will to any degree of hardness. If, for instance, a piece of steel be heated to redness and plunged into water, it is made hard and brittle; but if it be again heated and slowly cooled, its original softness is restored. By gently reheating the steel it will acquire a gradation of tints indicating various degrees of hardness, beginning with pale straw color, and passing successively to full yellow, brown, purple, and finally to blue. The straw color is the result of a temperature of about 440°, and the blue of about 570° F., the former being the hardest and the latter the softest tempering.

The use of steel is no longer confined to such small articles as files, edge-tools, knives, and other cutlery. By means of improved machinery and processes, steel is at present manufactured on a scale that was little dreamed of thirty years ago, so that such objects as field-guns, heavy shafting, tires, rails, boiler-plates, and the like are now being made of this material. The superior tensile strength of steel, which is about double that of malleable iron, gives it a great advantage where lightness is required. Large numbers of steamships are now being built of steel.

In 1740 the entire quantity of iron made in Great Britain is believed not to have exceeded 25,000 tons; in 1802 the annual make was estimated at 170,000; in 1828, at 702,584; and in 1839, at 1,512,000 tons. In 1854, the first year of the carefully collected statistics now published annually by the mining record office, the produce was 3,069,838, and from that time to the present it has gradually risen to nearly 7,000,000 tons. A very large amount of this pig-iron is converted into malleable iron, as there are now upwards of 7,000 puddling furnaces in the country. In the United States about 2,830,000 tons of pig-iron were made in 1872, and the make had risen in 1883 to 5,146,972 tons. On the continent the iron manufacture is rapidly extending in France, Belgium, Prussia, Austria, Sweden, and Russia. It is remarkable that as much as 250,000 tons of steel were made in 1875 both in Germany and France by the Bessemer and other processes, a large quantity being also made in other countries. Notwithstanding the activity of the iron-trade abroad, the produce of Great Britain is still about one-half that of all other countries put together.

Siemens's regenerative gas-furnace is now so much used in the making and melting of steel, as well as for other purposes, that it is desirable to give a short description of it here. No furnace yet designed can be compared with it in respect to economical consumption of fuel. It consists of two parts: one of these contains the "regenerators," or, as Dr. Percy calls them, the "accumulators;" the other, which may either be quite near or more than 100 ft. apart, contains the "gas-producers" or source of the heat. In the regenerative portion, when the furnace is to be used for the production of iron or steel, there is a melting hearth or bed like that represented at B in fig. 3. Immediately below this hearth there are two pairs of arched chambers filled with fire-bricks placed sufficiently far apart to let air or gases pass freely between them, and at the same time expose a large surface to absorb heat. One pair of these chambers or regenerators communicates by separate flues with one end of the hearth, the other pair with the opposite end of it. Thus we have in duplicate, so to speak, a chamber through which gas and another through which air can be admitted. The furnace being in operation; while the gas and air are being admitted to the hearth through, say, the left pair of these chambers, the highly-heated products of combustion pass through the open brick-work of the corresponding pair on the right before reaching the chimney. What would pass up the chimney as waste heat in an ordinary furnace is thus absorbed by the bricks of the regenerators. After a given time—usually from 30 to 60 minutes—by means of suitable pipes and valves, the arrangement, or if we may so call it, the current, is reversed. Gas and air are now sent through the freshly-heated pair of regenerators, while the "waste heat" in turn passes into the other pair. In this way, by reversing the valves at intervals, hot currents of gas and air, in suitable proportions, are always reaching the hearth where combustion is effected at a very high temperature.

The gas-producer, of which there are commonly four in a block, is a rectangular chamber with a sloping front and grate of firebars, on which, by means of a feeder, a thick layer of fuel is maintained. This fuel is mainly converted into carbonic oxide, hydrogen, and hydrocarbons—all combustible gases—and together forming the "gas" we have referred to in describing the regenerator. Almost any kind of fuel, however poor, may be used for these gas-producers, which are connected by means of a pipe with the generators.

3. *Iron in its Physiological and Therapeutic Relations.*—Iron is an essential constituent of the coloring matter of the blood-corpuscles of all vertebrate animals; and according to the best authorities, one part by weight of iron is found in 230 parts of blood-corpuscles, and the total quantity of this metal in the blood of a man weighing 140 pounds is about 38 grains. It is the presence of iron in the blood that communicates to the ashes of that fluid their reddish-brown color, the iron being found in them, as the peroxide. The ashes of the hair, of birds' feathers, of the contents of eggs, of the gastric juice, of milk, and indeed of most animal fluids contain traces of this metal.

Nothing is known with certainty regarding the chemical condition of the iron in the animal body, that is to say, whether it is present as a protoxide, a peroxide, etc. It is introduced into the system with the food and drink, and any excess beyond what is required is discharged with the excrements. When an insufficient quantity is contained in the nutriment, chalybeate medicines become necessary. The iron that is set free within the system by the constant disintegration of blood-corpuscles is carried out of the system partly by the urine, partly by the coloring matter of the bile, which is highly ferruginous, and probably is in part eliminated by the hair. The exact part which the iron plays in the body is uncertain; but it is most probable that the power which the blood-corpuscles possess as oxygen carriers is mainly due to the presence of this substance.

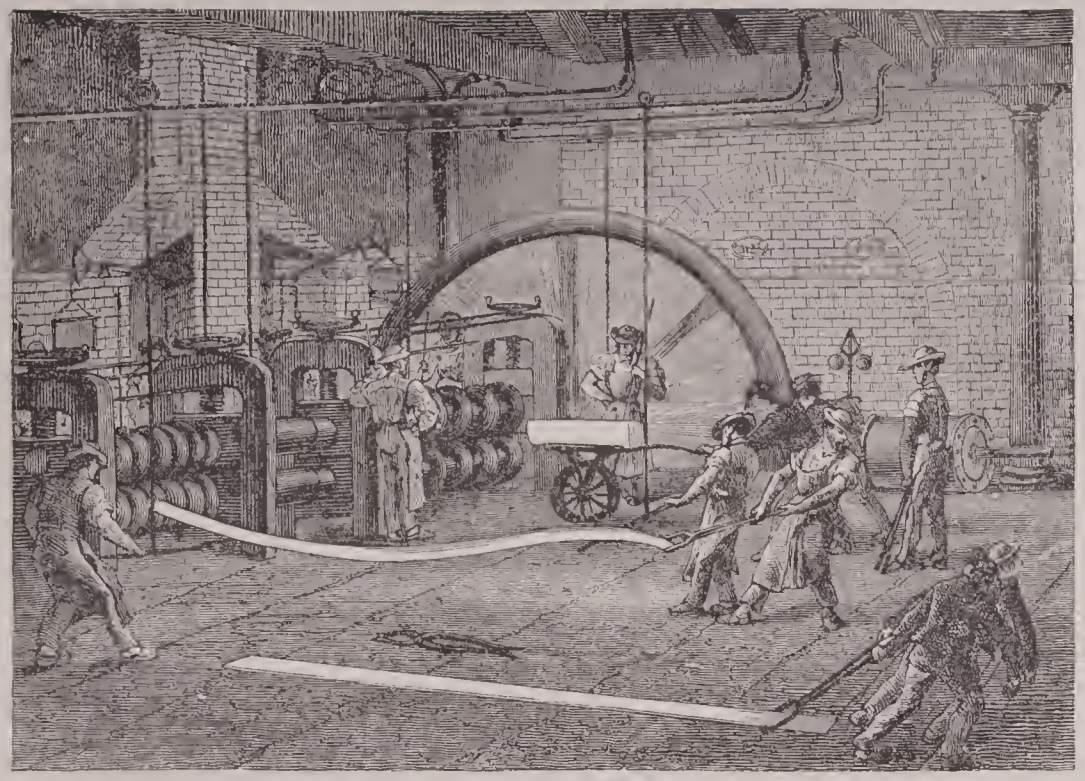
When from any cause the blood-corpuscles are reduced in number, the state known as *anæmia* (q.v.) is produced, which is accompanied by general weakness and deranged functions. In this condition of the system the iron compounds are of incomparably more service than any other remedies. In chlorosis (q.v.), which is closely allied to anæmia, in amenorrhœa; and in certain painful nervous affections, the salts of iron are of especial service. The forms in which iron may be prescribed are very numerous, and vary considerably in their utility, according to the readiness with which they get taken up into the blood. Amongst the most generally used ferruginous medicines may be mentioned the tincture of the sesquichloride, the saccharine carbonate, the compound iron mixture (containing the carbonate), the sulphate, the potassio-tartrate, several citrates (especially the citrate of iron and quinine), etc. A course of chalybeate waters (q.v.) may often be prescribed with great advantage, when the patient cannot bear the administration of iron in its ordinary medicinal form.

*IRON (*ante*). The processes of converting the ore into metallic iron are of two kinds—direct and indirect. In the direct process the ore is converted by one operation or a few operations into wrought iron. This method, employed by the ancients, is still used in some parts of the world, as in India and Central Asia, Africa, and South America. With some modifications and improvements it is practiced also in Europe and the United States, and yields the best iron, but at a greater expense than by the indirect process, which consists in first making pig-iron by smelting the ore in a blast-furnace with fluxes, by which means the metal is more readily obtained, and then reducing the product by puddling and other processes, or by certain manipulations converting the pig-iron into cast-steel.

According to the census of 1880 the iron and steel industry, in the gross value of products, ranks third among the great industries of the U. S., being inferior only to the flour and grist-mill and the slaughtering and meat-packing industries. The following table presents a summary of the more important results established by the last census as compared with the preceding one :

	No. of Establishments.	Capital Invested.	Value Materials.	Hands Employed.	Wages paid.	Total value Products.	Total weight produced.
		$	$		$	$	tons.
Census, 1880	1,005	230,971,884	191,271,150	140,978	55,476,785	296,557,685	7,266,140
" 1870.....	808	121.772,074	135,526,132	77,555	40,514,981	207,208,696	3,655,215
Percentage of Increase, 1880.	24.38	89.68	41.13	81.78	36.93	43.12	98.76

Pennsylvania, which for over one hundred years has been the leading iron producing state in the union, in 1880 made 3,616,668 tons, or about 50 per cent. of the total product. Ohio came second with 930,141 tons, or about 13 per cent. of the total product, and among the other states the total percentage was distributed as follows : New York, 8 ; Ill., 6 ; N. J., 3 ; Wis. and W. Va., each over 2 ; Mich. and Mass., each nearly 2 ; Miss., Ky., and Md., each over 1½ ; Indiana, over 1 ; Tenn., about 1 ; and all other states and territories, an aggregate of abt. 4 per cent. In regard to the geographical distribution of this industry, the census of 1880 further shows that New England now makes but little pig-iron, while the South makes considerable pig-iron and scarcely any rolled iron ; that the West has embarked largely in the manufacture of steel by the Bessemer process, while New England does not possess a single Bessemer establishment,



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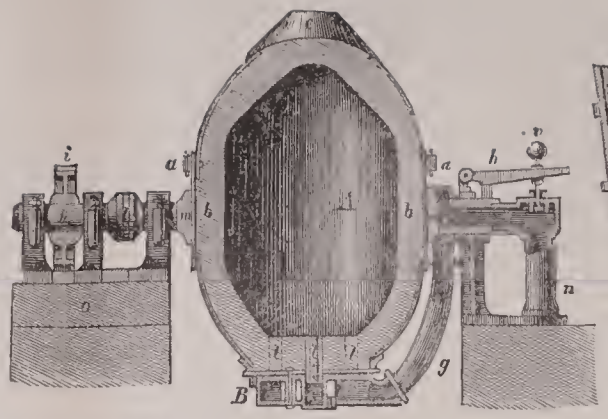

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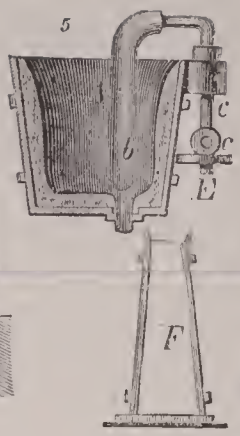

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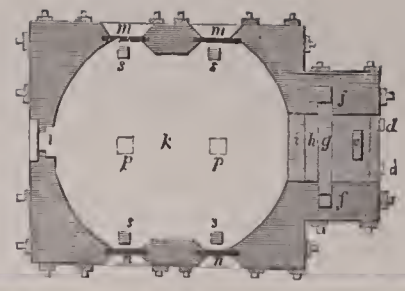

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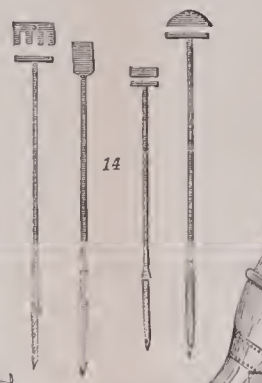

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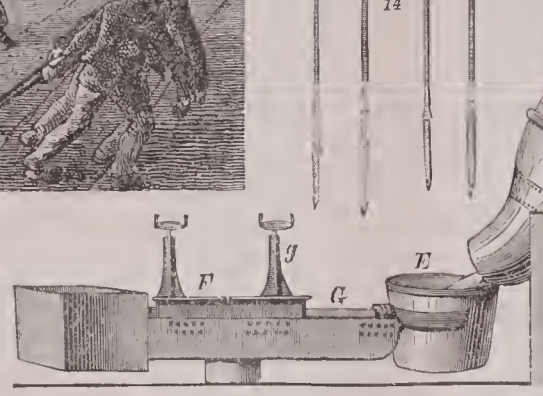

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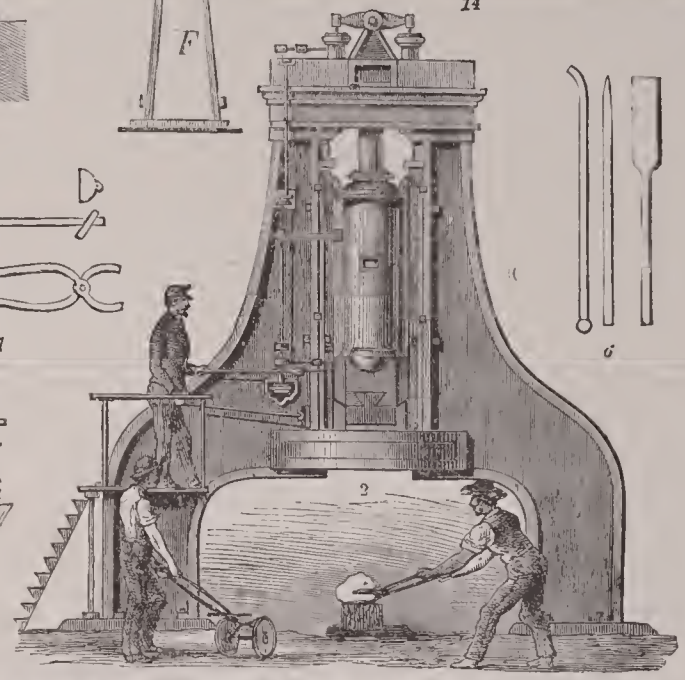

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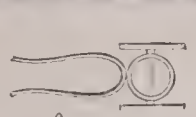

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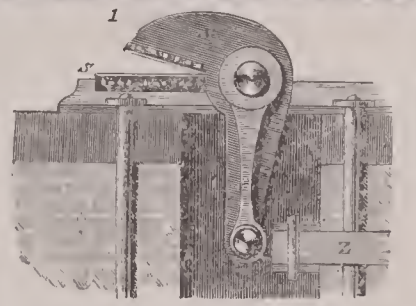

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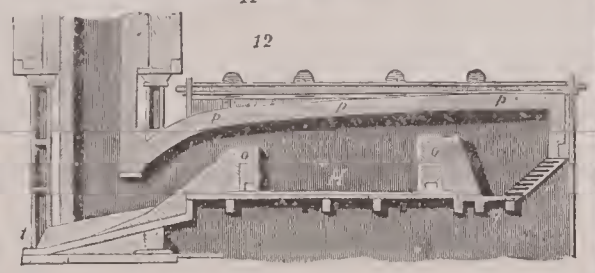

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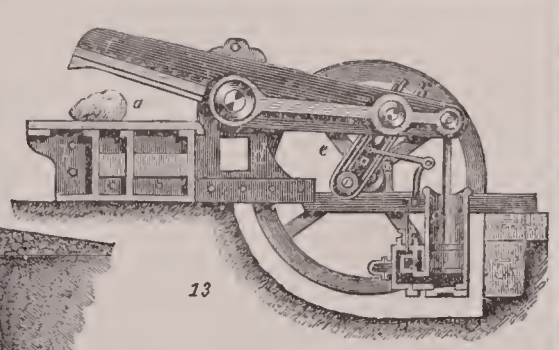

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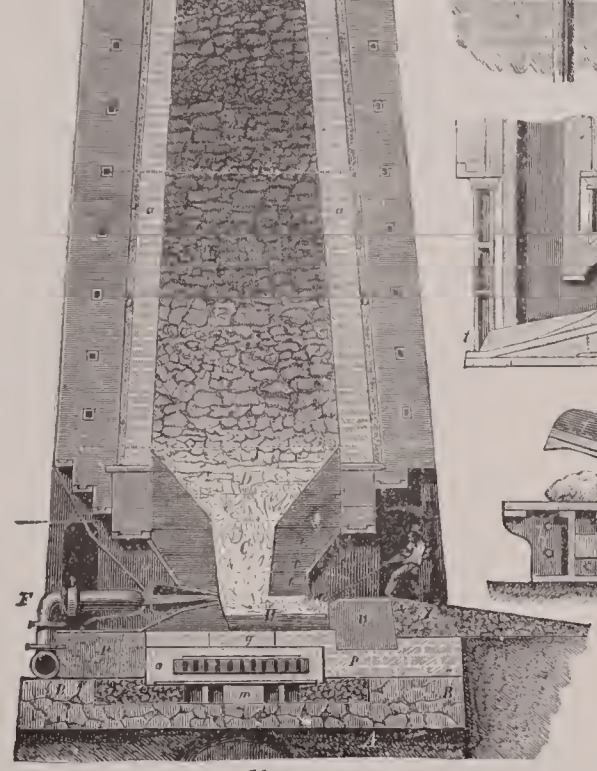

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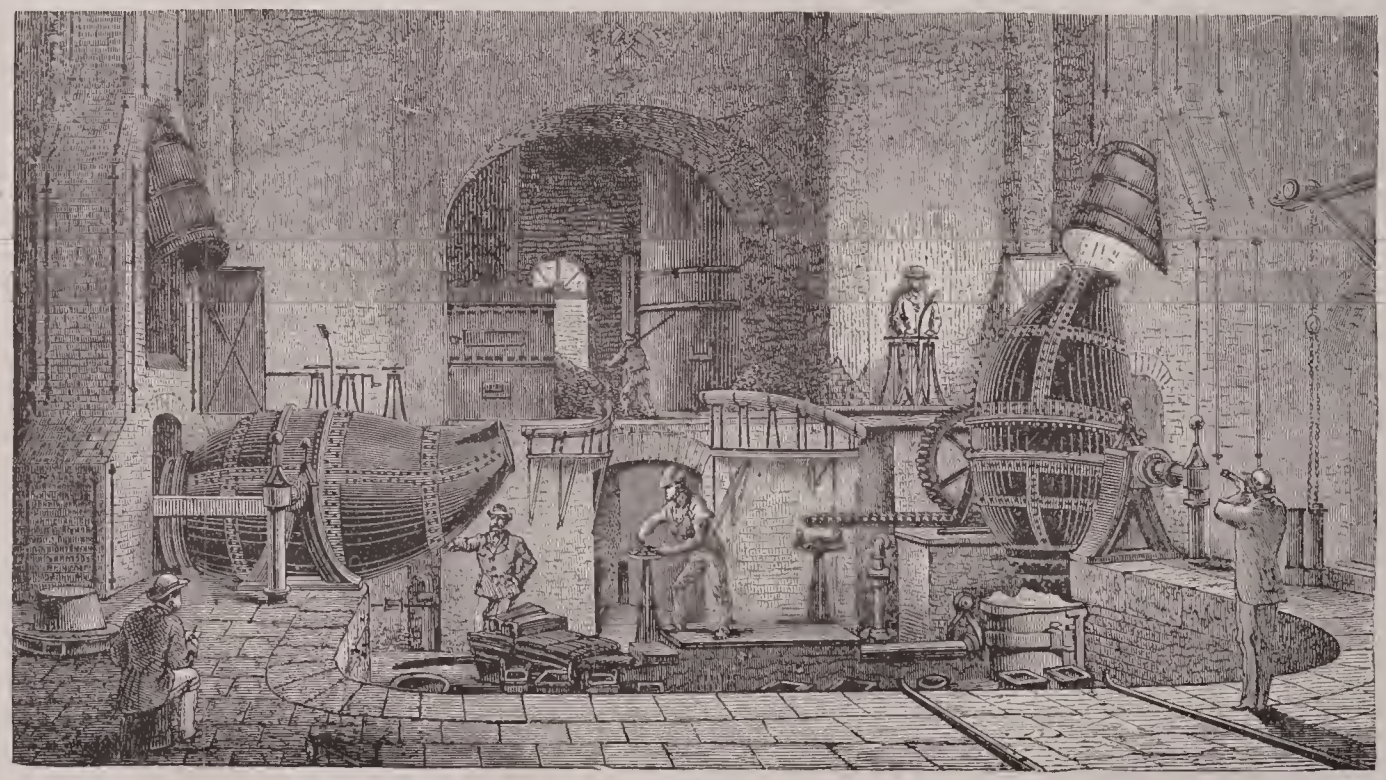

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Iron and Steel.—1. Rolling-iron. 2. Steam-hammer. 3-5. Apparatus for making Bessemer steel. 6-8. Puddling tools. 9. Bessemer steel foundry. 10. Blast furnace. 11. Shears. 12. Puddling-furnace. 13. Squeezer. 14. Ground-plan of roasting-furnace, and tools.

preferring the open-hearth process ; that N. Y. makes most of the blooms that are made from ore, and Penn. most of the blooms that are made from pig and scrap iron ; that Mich. is the leading producer of charcoal pig iron and now makes no other kind ; that W. Va. has developed a remarkably active interest in the manufacture of cut nails ; that only 5 states make Bessemer steel, and 2 states,, Penn. and N. J., make nearly all our crucible steel ; and that Penn. has made a greater effort than any other state to manufacture all kinds of iron and steel. See *Statistics of the Iron and Steel Productions of the United States. Compiled by James M. Swank,* in Vol. II., Tenth Census of the U. S. Among the states which made iron or steel in 1870, Maine, N. C. and S. C. were the only ones that did not increase their production in 1880. S. C., indeed, produced no iron manufactures in the latter year. The greatest actual increase was in Penn., which in 1880 produced 3,616,668 tons as against 1,836,808 in 1870, but the greatest percentage of increase was in Ills., which in 1880 produced 417,967 tons as against 25,305 in 1870. Next to Ill. in percentage of increase came Ala., Cal., and Wis., all of which had more than quadrupled their production during the decade. Of the total number of hands employed in iron and steel works throughout the U. S. in 1880 there were, males above 16 years of age, 133,203 ; under 16 years, 7,709 ; females above 15 years, 45 ; below 15 years, 21. The comparatively small number of boys and the very small number of women and girls employed is creditable to American civilization. The average yearly wages paid was $393.51. The average daily wages of skilled labor were $2.59 ; of unskilled labor, $1.24. The highest average daily wages of skilled labor were paid in R. I., Col. and Wy. T., $4, the lowest in N. C., $1.25 ; the highest average wages of unskilled labor were paid in Wy. T., $2, and in Col. and Cal., $1.75 ; the lowest in N. C., 50c. See *Supp.*, page 883.

IRON, a co. in s.e. Missouri; bounded n.e. by Iron mountain and Pilot Knob; 500 sq.m.; pop. '80, 8,183. It is mountainous. and has extensive forests of oak, pine, walnut, etc. Iron ore is abundant, and gold, lead, nickel, and other metals are found. The staple products are grain and wool. The St. Louis and Iron Mountain railroad passes through it. Pilot Knob is in this county, a conical hill 1500 ft. above the sea, and 560 ft. above the plain.

IRON, a co. in s. Utah, extending through the state from e. to w.; intersected in the e. by the Colorado; 9,200 sq.m.; pop. '80, 4,013. The Wasatch mountains cross it in the west. The staple is wool; but wheat, maize, hay, and potatoes are produced. Much of this county is covered with arid plains, and requires irrigation. It abounds in iron and other minerals. Capital, Parowan.

IRON BARK TREE, a name given in Australia to certain species of *eucalyptus* (q.v.), and particularly *E. resinifera*, on account of the extreme hardness of the bark. These trees attain a height of 80 or 100 ft., and a circumference near the base of 20 to 25 feet. The timber is very valuable for ship-building, and for other purposes in which hardness and durability are required. It withstands vicissitudes of weather for a great number of years without injury.

IRON-CLAD OATH, an oath of allegiance prescribed by statute of the United States, for those taking office under the national or state governments, in accordance with the provisions of the 14th amendment to the constitution. The oath as administered reads as follows:

"I, ————————, residing at ————————, do solemnly swear that I have never voluntarily borne arms against the United States since I have been a citizen thereof; that I have voluntarily given no aid, countenance, counsel, or encouragement to persons engaged in armed hostility thereto; that I have neither sought, nor accepted, nor attempted to exercise the functions of any office whatever under any authority or pretended authority in hostility to the United States; that I have not yielded a voluntary support to any pretended government, authority, power, or constitution within the United States, hostile or inimical thereto. And I do further swear that, to the best of my knowledge and ability, I will support and defend the constitution of the United States against all enemies, foreign and domestic; that I will bear true faith and allegiance to the same; that I take this obligation freely, without any mental reservation or purpose of evasion; and that I will well and faithfully discharge the duties of the office on which I am about to enter. So help me God."

Sworn to before me, this —— day of ————, 188—. }
}
U. S. Commissioner.

This oath is still administered to officers under the U. S. government, but its application has been restricted by special acts of congress, relieving, in certain instances, classes and individuals from the effect of its provisions.

IRON-CLAD SHIPS. See ARMOR PLATES, *ante.*

IRON CROSS, a Prussian order of knighthood, instituted on Mar. 10, 1813, by Frederick William III., and conferred for distinguished services in the war which was then being carried on. The decoration is an iron cross with silver mounting. The grand cross. a cross of double the size, was presented exclusively for the gaining of a decisive battle, or the capture or brave defense of a fortress.

IRON CROWN, the crown of the ancient Longobardian kings, given, according to an unauthenticated tradition, by pope Gregory the great to queen Theodolinda, and preserved till lately in the cathedral of Monza. Henry, in 1311, is the first German emperor who is known to have worn it. It was removed by the Austrians to Vienna after 1859, but was presented to the king of Italy in 1866. The outer part of the crown consists of a golden hoop, with enameled flowers and precious stones, in form like an ancient diadem, within which is a thin plate or fillet of iron, which is declared by a tradition long opposed by the church at Milan, but adopted by the congregation "*dei sacri riti*" at Rome, to have been hammered from one of the nails of the true cross. When Napoleon I. was elected king of Italy in 1805, he took this relic and crowned himself with it, disdaining to receive it from the hands of a bishop; and at the same time he founded an order of knighthood, taking its name from the iron crown. The order—forgotten after the fall of Napoleon—was restored and remodeled in 1816 by the emperor Francis I., who gave it the name of the Austrian order of the iron crown.

IRON MASK, The Man with the. The story of the prisoner so called, confined in the Bastile and other prisons in the reign of Louis XIV., has long kept up a romantic interest. The first notice of him was given in a work entitled *Mémoires Secrets pour servir à l'Histoire de Perse* (Amst. 1745–46). According to this writer, he was the duke of Vermandois, a natural son of Louis XIV. and De la Vallière, who, having given a box on the ear to his half-brother, the grand dauphin, had to expiate it with imprisonment for life. The assertion was without foundation, for the duke of Vermandois died in camp in 1683; but the confidence with which it was made caused a deep sensation, and the romance of Mouhy, *L'Homme au Masque de Fer*, which immediately followed (Hague, 1746), was read with all the more avidity that it was prohibited. Voltaire, in his *Siècle de Louis XIV.*, treats the anecdote historically. According to him, the prisoner was young, and of a noble figure. In journeying from one prison to another, he wore a mask, and was at last transferred to the Bastile, where he was treated with great distinction; and so on.

The first authentic information with regard to the iron mask was given by the Jesuit Griffet, who acted for nine years as confessor in the Bastile, in his *Traité des differentes Sortes de Preuves qui servent à établir la Vérité dans l'Histoire* (Liège, 1769). He brought forward the MS. journal of Dujonca, the lieut. of the Bastile, according to which Saint-Mars arrived, on Sept. 18, 1698, from the isle de Sainte-Marguerite, bringing with him in a litter a prisoner whom he had already had in custody at Pignerol. The prisoner's name was not mentioned, and his face was always kept concealed by a mask of black velvet. The journal mentions his death on Nov. 19, 1703, and that he was buried in the cemetery of St. Paul. This is confirmed by the register of burials for the parish of St. Paul's, where the prisoner is mentioned under the name of Marchiali.

After long silence Voltaire returned to the subject in his *Essai sur les Meurs*, but he brought forward nothing new. In the seventh edition of the *Dictionnaire Philosophique* he related the story anew, under the head *Anna*, corrected his errors as to time from the journal of Dujonca, and concluded with the assurance that he knew more about the matter than Griffet, but chose, as a Frenchman, to be silent. An addition to the article, apparently by the editor of the work, freely states the opinion that the mask was an elder brother of Louis XIV. The writer makes Anne of Austria to have had this son by a favorite, and being thus undeceived as to her supposed barrenness, to have brought about a meeting with her husband, and in consequence bore Louis XIV. Louis is held to have first learned the existence of this brother when he came of age, and to have put him in confinement, to guard against any possible unpleasant consequences. Linguet, in the *Bastille Dévoilée* ("The Bastile Exposed"), ascribes this paternity to the duke of Buckingham. Saint-Michel published a book in 1790, in which he relates the story of the unfortunate being, and points to a secret marriage between queen Anne and cardinal Mazarin. What is remarkable is that the court continued to manifest an interest in the matter, and took every means to keep the identity of the prisoner in the dark. When the Bastile fell the prisoner's room was eagerly searched, and also the prison register; but all inquiry was vain. The abbé Soulavie, who published *Mémoires de Maréchal Richelieu* (Lond. and Par. 1790), tries to make out from a document written by the tutor of that unfortunate prince that the iron mask was a twin-brother of Louis XIV. A prophecy had announced disaster to the royal family from a double birth, and to avoid this, Louis XIII. had caused the last born of the twins to be brought up in secret. Louis XIV. learned of his brother's existence only after the death of Mazarin, and that brother having discovered his relation to the king by means of a portrait, was subjected to perpetual imprisonment. This view of the matter was that almost universally prevalent till the time of the revolution. It is also followed in Zschokke's German tragedy, and in Fournier's drama, founded on the story.

The first conjecture of what till recently seemed to be the truth is contained in a letter dated 1770, written by a baron d'Heiss to the *Journal Encyclopédique*. The same is repeated by Louis Dutens in his *Intercepted Correspondence* (1789), who declares that there is no point of history better established than the fact that the prisoner with the iron mask was a minister of the duke of Mantua. This minister, count Matthioli, had pledged himself to Louis XIV. to urge his master the duke to deliver up to the French

the fortress of Casale, which gave access to the whole of Lombardy. Though largely bribed to maintain the French interests he began to betray them; and Louis XIV., having got conclusive proofs of the treachery, contrived to have Matthioli lured to the French frontier, secretly arrested, April 23, 1679, and conveyed to the fortress of Pignerol, which was his first prison. The conclusion of D'Heiss and Dutens, that Matthioli was the iron mask, though acute, was only a conjecture. But the documents since discovered and published by M. Roux-Fazillac in his *Recerches historiques et critiques sur l'Homme au Masque de Fer* (Par. 1800), by M. Delort in his *Histoire de l'Homme au Masque de Fer* (Par. 1825), and M. Marius Topin in his *Man with the Iron Mask* (1869), seemed to leave little doubt on the subject, and the public had apparently made up its mind that the secret was at last discovered; but a still more recent work by a French officer, M. Th. Iung. *La Vérité sur le Masque de Fer* (*Les Empoisonneurs*) *d'après des Documents inédits des Archives de la Guerre et autres dépôts publics*, 1664–1703 (Par. 1873), has conclusively shown that Matthioli could not have been the mysterious prisoner, and endeavors to prove—we would almost venture to say, *succeeds* in proving—that the man in the iron mask was the unknown head of a wide-spread and formidable conspiracy, working in secret for the assassination of Louis XIV. and some of his ablest ministers. The severity of M. Iung's labors with reference to this subject will be understood when it is stated that in the course of his researches he had to examine some 1700 volumes of dispatches and reports in the bureau of the ministry of war.

IRON-MONGERY, a term applied to the small manufactures of iron or hardware kept for general sale in shops.

IRON MOUNTAIN, a famous deposit of iron ore in St. Francois co., Mo., 40 m. s.w. of St. Genevieve, on the Mississippi, and connected with St. Louis by railroad. The ore is rich and pure. It is magnetic, having distinct polarity, and in some places acts strongly on the needle. The main body of the ore has a thickness of 50 ft.; its depth is unknown, but the amount is immense. In 1871 262,477 tons, and in 1872 371,474 tons were shipped by the Iron Mountain company. The deposit has been fully described by Dr. Litton in the second annual report of the geological survey of Missouri, 1855, and by prof. Raphael Pumpelly and Dr. Adolph Schmidt.

IRONS, otherwise called Bilboes, are shackles of iron into which the ankles of a prisoner are fixed, and which slide on a long iron bar. Refractory sailors and soldiers, who evince violent behavior, and become unmanageable, are commonly put in irons, several being placed side by side along the same bar. In cases of extreme violence the wrists may be similarly treated, but instances of this latter punishment are rare. The punishment of "putting in irons" is more common in the navy than in the army.

IRONS, William Josiah, b. England, 1812; graduated at Oxford; was made prebendary of St. Paul's, London, 1860; and chosen Bampton lecturer, 1870. He is the author of several valuable theological treatises.

IRONTON, a city of Lawrence co., Ohio, on the Ohio river, 142 m. above Cincinnati and 100 s. e. of Columbus; pop. '80, 8,857. It is on a plain at the base of lofty hills, which contain iron ore and bituminous coal. It is the terminus of the Iron railroad, 13 m. long. It has 15 churches, 2 national banks, a high school, 4 weekly newspapers, a large number of furnaces, rolling-mills, iron-foundries, and machine-shops. The chief article of export is iron, the iron trade amounting to $7,000,000 a year. The city is lighted with gas, and furnished with water by the Holly works.

IRONWOOD, a name bestowed in different countries on the timber of different trees, on account of its great hardness and heaviness.—*Metrosideros vera* belongs to the natural order *myrtaceæ*, and is a native of Java and other eastern islands. It has ovato-lanceolate, shortly stalked, smooth, sharp-pointed leaves; and axillary, many-flowered, stalked cymes. Its wood is much valued by the Chinese and Japanese for making rudders, etc., and is imported into Britain in small quantities under the name of ironwood. The bark is used in Japan as a remedy for diarrhea and mucous discharges.—*Mesua ferrea*, a tree of the natural order *guttiferæ*, is a native of the East Indies, and is planted near Buddhist temples for the sake of its fragrant flowers, with which the images of Buddha are decorated. The flowers resemble small white roses, and contrast singularly with the deep crimson buds and shoots. The timber, known as ironwood, is very hard, as is that of *M. speciosa*, another tree of the same genus and region.—The wood of *vepris undulata*, of the order *diosmaceæ*, is called white ironwood at the cape of Good Hope. It is very hard and tough, and is chiefly used for axles, plows, and other agricultural implements.—The wood of *olea laurifolia*, a species of olive, is called black ironwood in the same country, and is used for the same purposes, and for furniture.

IRONY (Gr. *eirōneia*, from *eirōn*, a dissembler) is the name given to that peculiar style of thought and expression by which words are made to convey a meaning exactly opposed to their literal sense. When skillfully used irony is one of the most crushing and irresistible figures of rhetoric. Instances will readily occur to every reader of history and literature. One of the most celebrated is that recorded in Scripture, where Elijah taunts the discomfited priests of Baal on Mount Carmel. The great master of irony in ancient times was Socrates, who, as has been happily said, raised it to the dignity of a philosophic method.

IROQUOIS. See INDIANS.

IROQUOIS (*ante*), or SIX NATIONS, a confederacy originally consisting of the five tribes, Mohawks, Oneidas, Onondagas, Cayugas, and Senecas, to whom in 1712 were added the Tuscaroras. The league was then called the Six Nations. They inhabited the central and western part of New York, and numbered about 15,000. Each tribe was divided into families, and governed by sachems, but all matters of common interest were settled in a general meeting of all the sachems of the confederacy. They were the most powerful, enterprising, and intelligent of all the Indian tribes. They encouraged other nations to join them, and in the early part of the 17th c. had conquered all the neighboring tribes. They were alternately at war and in alliance with the Dutch, French, and English. In the war of the revolution they took sides with the English under the brave leaders Brant of the Mohawks and Red Jacket of the Senecas, destroying with fire and sword several white settlements. After the war, treaties were made at different times for the cession of their lands, until, 1796, the Indian title was extinguished to the whole region from lake Champlain to the St. Lawrence, and most of the Iroquois emigrated to other places. The Mohawks settled on Grand river, Ontario, Canada, numbering now 2,000. Some from the Tuscaroras and other tribes joined them. In 1820 some of the Oneidas settled on a reservation in Green Bay, Wis., and some of the Senecas in Indian territory. Some of the Oneidas and Senecas removed in 1820 to Canada. The Cayugas in 1795 sold their lands in New York, and joined other tribes with whom they intermarried, a few living together at the Cattaraugus reservation in Erie, near Buffalo. In 1855 the Iroquois group in New York, Wisconsin, Arkansas, and Missouri numbered about 6,000. The languages of the Iroquois, though in grammar and vocabulary related, are distinct. Most of the Protestant denominations have had missions among the Six Nations from the beginning of the century. *The Book of Common Prayer* has been printed in Mohawk, and portions of the Bible in Mohawk and Seneca. The principal works on the Iroquois published are *Cusick's Sketches of the History of the Six Nations*, 1826; Colden's *History of the Five Nations*, 1727 and 1805; Schoolcraft's *Notes on the Iroquois*, 1826; *Stone's Life of Brant*, 2 vols., and *Life of Red Jacket*, 1841.

IROQUOIS, an eastern co. of Illinois, bordering on Indiana, intersected by the Iroquois river, and partly drained by the Kankakee river; 1100 sq.m.; pop. '80, 35,451. It is traversed by the Chicago division of the Illinois Central, Toledo, Peoria, and Warsaw, and Chicago, Danville, and Vincennes railroads. Capital, Watseka. The surface is level, mostly prairie. The soil is generally fertile. The staple products are oats, maize, hay, cattle, and pork.

IRRA'TIONAL NUMBERS, a term applied to those roots of numbers which cannot be accurately expressed by a finite number of figures. For instance, $\sqrt{2}$ is an irrational number. If the diameter of a circle is one foot, the circumference is an irrational number. Irrational numbers have been defined to be numbers which are incommensurable with unity. They are also commonly termed surds.

IRRAWA'DI (said to mean, like Mississippi, "father of waters"), the great river of Farther India, is believed to rise in Thibet, near lat. 28° n., and long. 98° e., terminating in lat. 16° 20′ n , and long 96° e. Its course is pretty nearly due s., and has been estimated at 1200 m. in length. After receiving the Ning-thee, the Mogonny, the Bhamo, and the Lungtchuen, it begins to form its delta about 17° n., which, between the Rangoon on the e., and the Bassein on the w., comprises 10,000 sq.m. of forest and pasturage, curiously intersected by an inextricable network of the smaller branches of the stream. With regard to facilities of communication, the Irrawadi appears to be decidedly superior to the Indus and the Ganges, being navigable, even at low water, for vessels of 200 tons, as far as Ava, which is 400 m. from the sea, and for canoes as far as Bhamo, which is 180 m. higher up. The Irrawadi successively traverses China, Burmah, and Pegu. As the region last mentioned, forming the lowest part of its basin, is a province of British India, the Irrawadi, as a whole, may be said to be virtually under the control of England. In both our Burmese wars, it constituted the line of advance for our armies.

IRREDU'CIBLE CASE occurs in the solution of cubic equations (q.v.) by Cardan's method when p is negative, and $\frac{p^3}{27}$ greater than $\frac{q^2}{4}$ (abstracting from the sign). These conditions render $\sqrt{\left(\frac{q^2}{4}+\frac{p^3}{27}\right)}$ an imaginary quantity, and thus Cardan's formula fails in its application. The difficulty is got over by the aid of trigonometry.

IRREL'EVANT, a term used in Scotch law to denote that what is said or put forward by an opponent in an action has no bearing on the subject, even if it were true. The corresponding term, in English law, is that the pleading containing the irrelevant matter is demurrable

IRRIGA'TION (Lat. watering), a method of producing or increasing fertility in soils by an artificial supply of water, or by inundating them at stated periods. Irrigation was probably first resorted to in countries where much of the land must otherwise have remained barren from drought, as in Egypt, where it was extensively practiced nearly 2,000 years B.C., and where great systems of canals and artificial lakes were formed for

the purpose. Extensive works, intended for the irrigation of large districts, existed in times of remote antiquity in Mesopotamia, Persia, India, China, and some other parts of the east; and in such of these countries as have not entirely lost their ancient prosperity, such works still exist. In many parts of the world the necessity of irrigation, at least at certain seasons of the year, is so strongly felt that the agriculture even of comparatively rude tribes depends on the facility with which it can be accomplished. Some plants also require a very abundant supply of water, and irrigation has become general where their cultivation prevails. This is particularly the case with rice, the principal grain of great part of Asia. Irrigation is supposed to have been introduced into Britain by the Romans, but was very little practiced till the beginning of the present century. In Europe, irrigation prevails chiefly in the s., where it was extensively practiced by the Romans, from whom it was adopted by the Lombards; and it is most extensively practiced in Lombardy, and in some parts of Spain, and in the s. of France, so that the great plains and valleys of the Po, Adige, Tagus, Douro, and other rivers, are almost entirely subjected to a systematic irrigation, which prodigiously increases their fertility. The extent of irrigated land in the valley of the Po is estimated at 1,600,000 acres, and the increase of rental thus caused at £830,000.

Irrigation in Britain, and in most parts of Europe, except Lombardy, is almost exclusively employed for the purpose of increasing the produce of grass by converting the land into water-meadows. The value of it, even for this one purpose, does not seem to be sufficiently understood. Poor heaths have been converted into luxuriant meadows by means of irrigation alone. But in the countries in which irrigation is most extensively practiced the production of all crops depends on it.

The irrigation of land with the sewage water of towns is, under another name, the application of liquid manure. In no small degree the water of rivers and of springs depends on its organic and mineral constituents for its fertilizing properties, so that the application of it is not in principle different from that of liquid manure; but it must be borne in mind that the mere abundance of water itself is of great importance for many of the most valuable plants, as the most nutritious substances brought into contact with their roots are of no use to them unless in a state of solution; whilst it is an additional recommendation of irrigation, that the supply of water most favorable to the growth of many valuable plants, is destructive of some which in many places naturally encumber the soil, as heath, broom, etc. The water which is used for irrigation should be free from mud and such impurities as mechanically clog the pores of leaves, or cover up the *hearts* of plants, and interfere with their growth. Irrigation is far from being so extensively practiced in Great Britain as seems desirable. The extent of water-meadows in England is stated to be not more than 100,000 acres. They are mostly confined to the w. and s. of England. Individual farms, irrigated with sewage water, are to be met with in Nottinghamshire, Staffordshire, Lancashire, Cheshire, and in one or two counties in Wales. The most successful instance, however, of sewage irrigation in Great Britain is to be found near Edinburgh, where an extensive tract of meadows, lying between Portobello and Leith, yields a rent of £20 to £40 an acre; the grass is cut from 3 to 5 times a year, and as much as 10 tons an acre have been obtained at a cutting. See SEWAGE, MANURE.

The method of forming and laying out water-meadows will be easily gathered from the following sketch of the different species of irrigation as practiced in this country.

1. *Bed-work Irrigation:*—This method can only be conveniently applied to ground which is nearly level. It consists in laying out the ground into sloping beds or ridges, from 30 to 40 ft. wide, according to the nature of the soil, having their upper ends lying in a gentle slope from one side to the other of the meadow. Along the upper ends of the beds is drawn the drain or *conductor*, which brings the water from the reservoir or river, as the case may be; and this conductor must be tapered off towards its further end, in order that the diminished supply of water may still overflow. From this conductor, small drains, called *feeders*, are led down along the crown of each ridge. In the lowest part of the meadow, a main-drain, which must be made nearly as large as the conductor, is cut across the lower ends of the beds, and the water, after having served the purpose of irrigation, is led into it by means of small drains cut in the furrows. The feeders should, like the conductor, taper towards their further extremity, both for the purpose of retarding the velocity of the water, and of preserving a continual overflow along their whole length. On the contrary, the small drains should gradually widen towards their lower extremity, where they meet the main-drain. The dimensions and inclination of the conductor and feeders should be so regulated to the water-supply, that the beds can be wholly laid under water to the depth of about one inch. The expense of bed-work irrigation ranges from £20 to £40 per acre.

2. *Catch-work Irrigation* differs materially from the former; it can be applied to land whether level or not, costs only £4 per acre, and, in the opinion of many, is quite as effective. The conductor formed as before is led along the highest side of the field, then with the aid of a level, a succession of perfectly level gutters (which, of course, must be winding) are drawn across the field in the same direction as the conductor, and not more than ten yards from each other; these are crossed by feeders running from the conductor to the lowest side of the field, thus forming a kind of checkwork. The main-drain is made as before, and the feeders, which taper towards their lower extremity, serve for small drains. This plan is more effective than the former, when the supply of

water is limited; and as it can be applied to a hillside as well as to a level field, its application is rapidly extending.

3. *Subterraneous Irrigation* isonly applicable to perfectly level fields, and consists, first, of ditches being formed all round the sides. At right angles to these, drains or conduits are drawn across the field in parallel lines. When the land is to be irrigated, water is let into the ditches, and thence to the cross-drains, till it rises to the level of the surface; and when the ground is to be laid dry, the side-ditches are emptied by sluices. The bottom of the ditches is below the level of that of the cross-drains, so that they serve both as conductor and main-drain.

The first two methods of irrigation are only applied to pasture-lands, and the third to fens and drained morasses, which are apt to become parched in summer; the last method would be very valuable for land under green crop in cases of drought.

The management of water-meadows requires great skill and care, but we can only here mention the chief points to be attended to, which are these: the water, if limited in quantity, must be confined to a part which it can effectually irrigate; too much water or too rapid a flow tends to wash away the soil; the meadow may be kept under water for a fortnight at a time, in Nov., but the time should be diminished till April or May, when regular watering should cease; after the grass is cut or eaten down, the water may be let on for a few days; and it is necessary that between the times of watering the land should be laid perfectly dry. Special precautions are necessary in winter, to guard against any bad effects resulting from frost, etc.

IRRIGATION (*ante*). Some of the ancient works for irrigation were stupendous. The canal of the Pharaohs, which connected Pelusium with the Red sea, was an irrigatting canal. There existed a work in Arabia, probably long before the time of Solomon, which, in some respects, excelled all works of the kind, modern or ancient, and corresponds well with the fact that the Arabians were among the first mathematicians. In Yemen, Arabia, there was an immense reservoir for holding water for irrigating the valley of Mareb. This reservoir was made by a dam 2 m. long and 120 ft. high. It was constructed of immense blocks of ashlar, and was so durable as to serve the purpose for which it was built more than 2,000 years. It then gave way, scattering ruin in the course of the torrent which it let loose. It must be borne in mind that one of the best examples of modern engineering is a dam in France across the Furens which is 164 ft. high, but only 328 ft. wide at the top. This work almost sinks into insignificance when compared to the ancient Arabian dam. It may, perhaps, be presumed that there is some exaggeration in the statement regarding the ancient work, but a reasonable allowance must leave it as one of the most stupendous engineering works of which we have any record. The plains of Assyria and Babylonia were intersected with a system of canals both for irrigation and navigation. In many of them the water was raised by mechanical means somewhat like that practiced at present in Egypt. The ancient Peruvians and Mexicans constructed immense aqueducts for irrigation purposes. The system of irrigation practiced in Lombardy at the present time, and derived from the ancient Romans, is the cause of the wonderful fertility of that country. The distribution of the waters of all the rivers of Lombardy is held by the government, and is rented for periods of time to the horticulturists and agriculturists. Channels are made for leading the water from the rivers, and from these secondary channels are constructed, about 24 ft. apart. In summer the water is allowed to flow only a few hours during each week, but from Oct. to April the flow is steadily kept up, except during grass-cutting. The lands thus irrigated well repay their owners for the outlay by the increased rent received, which is about one-third more, while the yield is double. The cultivation of rice can be successfully carried on only with irrigation, and the best lands are therefore found on the alluvial flats bordering rivers. The land is intersected by ditches, along which there are embankments supplied with gates, so that the water in the ditches may be raised above the level of the fields, and flowed upon them at pleasure. The rice is planted in trenches and lightly covered, and then the water is let on and kept there for from 4 to 6 days, or when the grains swell and begin to sprout. It is then let off till the sprouts are 2 or 3 in. above the ground, when it is let on again for about the same space of time. Then it is drained off, and after a time the rice is cultivated with a hoe. In from 6 to 8 weeks the water is again let on for 2 weeks, for the first 4 days to a considerable depth, after which it is gradually let off. See RICE. Considerable attention is paid to irrigation in our western territories and California. The facilities are usually great, as elevated mountain streams may generally be used as sources, whence the water finds its way by gravity wherever it is directed

IRRITABILITY in plants, a term employed to designate phenomena very interesting and curious, but than which none connected with vegetable life are more imperfectly understood. Such are the phenomena of what is usually called the *sleep* (q.v.) *of plants;* the motion of the spores (q.v.) of many cryptogamic plants by means of cilia; the motions of *oscillatoriæ, diatomaceæ,* and others of the lowest *algæ;* the successive approaches of the stamens of *Parnassia palustris* to the pistil; the movements of the leaves of the *moving plant* (q.v.) of India; and those caused by agitation or by the touch of a foreign body in the leaves of *sensitive plants* (q.v.) of the *dionæa* or Venus's fly-trap, etc., in the stamens of the barberry, *schizanthus,* etc., and in the stigmas of *mimulus,*

etc. Many explanations have been proposed of these phenomena, but none satisfactory. Of the existence of anything analogous to the nervous system of animals, which has been imagined, there is not the slightest proof, closely as some of the phenomena resemble those of animal life. The explanations which have been proposed are no better than mere guesses. See MUSCLES.

IRRITANCY (Lat. *irritus*, of no effect), a term in Scotch law to denote something in the nature of neglect or injury which destroys or makes void an existing right; in English law it is called forfeiture. Thus, there is the irritancy of a feu-right from non-payment of the duty for two years.—IRRITANT CLAUSE, in a Scotch entail, is a clause which makes void certain prohibited acts of the heir of entail, such as selling the property.

IRRITANTS. Those medicines which when applied to the skin or mucous membranes produce irritation are commonly called irritants. The term has been sometimes vaguely applied to medicines which produce irritation of nerves in distant parts when taken internally, as instanced in the action of strychnine upon the spinal cord, but such use is confusing; the better term to apply to strychnine is that of nervous stimulant. In one sense, however, irritants are nervous stimulants, because they act upon the nerves, and when these are paralyzed or divided the irritants lose their power. There is diversity in the action of irritants. Most mineral or miner-acid irritants cause disorganization, as corrosive sublimate, nitrate of silver, caustic potash and soda, also sulphuric, nitric, hydrochloric acids; but these agents are called also caustics. It would perhaps be more proper to apply the term irritant to such substances as create irritation without acting chemically, although disorganization or death of the parts might follow their continued application. The imponderable agents are irritants. Heat is an irritant, and may be considered as a mechanical or kinetic irritant. Light is also an irritant to the retina, and in diseases of the eye is often a powerful one. Electricity is an irritant when applied in certain forms, but may be used as a mild stimulant, just as heat may be employed to disorganize and to excite excessively, or to irritate or to gently stimulate.

IRRITA'TION is the term applied to any morbid excitement of the vital actions not amounting to inflammation; and it is often, but not always, a cause of that condition.

In cases of irritation, remarkable sympathetic symptoms are often observed. Thus, irritation of a calculus occasions intense sickness and vomiting. But of all sources of sympathetic morbid affections of this class, irritation of the stomach and intestines is at once the most common and the most important. The ordinary sick headache is the most frequent form of this sympathetic affection; but in certain morbid conditions, and especially in the puerperal state, the symptoms may be such as pretty closely to resemble those of acute inflammation of the peritoneum, the heart, the pleura, or the membranes of the brain. It is to Dr. Marshall Hall that the credit is mainly due of pointing out those cases in which irritation so closely resembles inflammation. He has shown that blood-letting affords a certain means of diagnosis in these cases. In true inflammation, 30 or 40 oz. of blood may be taken before there are any symptoms of faintness; while in irritation, the loss of a very few ounces (9 or 10) of blood will cause the most decided syncope.

IRTISH', a river of Siberia, an affluent of the Obi (q.v.).

IRVINE, a royal and parliamentary burgh, seaport, and market t. of the co. of Ayr, Scotland, is situated on both banks, but principally on an eminence on the right bank of the river Irvine, which is here crossed by a handsome stone bridge, about a mile above the embouchure of the river in the firth of Clyde. It is 11 m. n. of Ayr, and 29 m. s.w. of Glasgow by railway. The harbor has now become so much sanded up, as only to admit vessels of about 100 tons burden. The "academy" is one of the most flourishing educational institutions in the w. of Scotland. Ship-building, and the manufacture of book-muslins, jaconets, and checks, are among the branches of industry. Formerly, many women were employed in sewing muslins. The shipping trade for vessels under 100 tons burden is considerable. Irvine unites with Ayr, Campbeltown, Oban, and Inveraray, in sending a member to parliament. Pop. '81, 8,503.

IRVINE, WILLIAM; 1742–1804; b. Ireland; d. Philadelphia. He graduated at the Dublin university, was surgeon of an English ship of war in the English and French war, at the close of which, 1763, he emigrated to America, settling at Carlisle, Penn. In the revolution he joined the colonies, and was appointed by congress colonel of the 6th Pennsylvanian regiment. At the battle of Three Rivers, Canada, he was made prisoner, but exchanged May, 1778. He was made brig.gen. May 12, 1779. In 1781–83 he had command at fort Pitt of the troops for the defense of the western frontier, and 1785 was appointed for the state an agent to examine the public lands and devise a mode for their distribution to the soldiers. In 1787 he was made a member of the old congress, and of the convention to revise the constitution of Pennsylvania. In 1794 he was member of congress, and was appointed to the command of the troops to suppress the "whisky rebellion." He was president of the society of the Cincinnati.

IRVING, Rev. EDWARD, was b. in the town of Annan, Dumfriesshire, Aug. 15, 1792; studied at the university of Edinburgh, and, after completing his curriculum for the min-

istry, became assistant (in 1819) to Dr. Chalmers, then a minister in Glasgow. His sermons did not prove very popular. Chalmers himself was not satisfied. In 1822 Irving received a call to the Caledonian church, Hatton garden, London, which he accepted. His success as a preacher in the metropolis was such as had never previously been witnessed. After some years, however, the world of fashion got tired of Irving; but it was not till his more striking singularities of opinion were developed that fashion finally deserted him. At the close of 1825 he began to announce his convictions in regard to the second personal advent of the Lord Jesus, in which he had become a firm believer, and which he declared to be near at hand. This was followed up by the translation of a Spanish work, *The Coming of the Messiah in Majesty and Glory, by Juan Josafat Ben Ezra*, which professed to be written by a Christian Jew, but was, in reality, the composition of a Spanish Jesuit. Irving's introductory preface is regarded as one of his most remarkable literary performances. In 1828 appeared his *Homilies on the Sacraments.* He now began to elaborate his views of the incarnation of Christ, asserting with great emphasis the doctrine of his oneness with us in all the attributes of humanity. The language which he held on this subject drew upon him the accusation of heresy; he was charged with maintaining the sinfulness of Christ's nature, but he paid little heed to the alarm thus created. He was now deep in the study of the prophecies; and when the news came to London in the early part of 1830, of certain extraordinary manifestations of prophetic power in the w. of Scotland (see IRVINGITES), Irving was prepared to believe them. Harassed, worn, baffled in his most sacred desires for the regeneration of the great Babylon in which he dwelt, branded by the religious public, and satirized by the press, the great preacher, who strove above all things to be faithful to what seemed to him the truth of God, grasped at the new wonder with a passionate earnestness. Matters soon came to a crisis. Irving was arraigned before the presbytery of London in 1830, and convicted of heresy; ejected from his new church in Regent's square in 1832; and finally deposed in 1833 by the presbytery of Annan, which had licensed him. His defense of himself on this last occasion was one of his most splendid and sublime efforts of oratory. The majority of his congregation adhered to him, and gradually a new form of Christianity was developed, commonly known as Irvingism, though Irving had really very little to do with its development. Shortly after his health failed, and in obedience, as he believed, to the Spirit of God, he went down to Scotland, where he sank a victim to consumption. He died at Glasgow, Dec. 8, 1834, in the 42d year of his age.—See Carlyle's *Miscellaneous Essays*, and Mrs. Oliphant's *Life of Edward Irving* (London, 1862).

IRVING, HENRY. See page 883.

IRVING, PETER, 1771–1838; b. N. Y., brother of Washington. He studied but did not practice medicine. In 1802 he was editor and proprietor of the *Morning Chronicle*, a Democratic journal which advocated the election of Aaron Burr to the presidency. He was associated with his brother in the publication of *Knickerbocker's History of New York.* He resided in Europe, 1809–36.

IRVING, THEODORE, LL.D.; b. N. Y., 1809; graduated at Columbia college, 1837; visited Europe, 1828; and in Madrid, Paris, and London attended lectures and studied literature. He studied law in London and New York. In 1836–49 he was professor of history and belles-lettres in Geneva college, N. Y., and subsequently for 3 years was professor of belles-lettres in the Free academy of New York. In 1854 he was ordained a minister of the Episcopal church; became rector of St. Andrew's parish, Richmond, Staten island, and, 1874, rector of St. John's school for young ladies in New York. He published *The Conquest of Florida by De Soto*, and *The Fountain of Living Waters*, a devotional work. He d. 1880.

IRVING, WASHINGTON, a distinguished American author, was b. in the city of New York, April 3, 1783. He was the youngest son of William Irving, who had emigrated from Scotland, and settled in New York as a merchant before the revolution. Washington Irving at the age of 16 entered a law office; but he profited largely by his father's well-stocked library, Chaucer and Spenser being his favorite authors. New York, at this period, was a small town of about 50,000 inhabitants, many of whom were descendants of the original Dutch settlers, having quaint manners and customs, of which Irving was a curious observer. In 1804, with the excuse of a tendency to pulmonary disease, he visited, and traveled extensively in Europe; returned to New York in 1807, and contributed a series of genial and humorous essays to a periodical called *Salmagundi.* In 1809 he wrote *A History of New York, from the beginning of the World to the end of the Dutch Dynasty, by Diedrick Knickerbocker*, a burlesque chronicle, written in so quiet a vein of humor that it has sometimes been taken for a veritable history.

Having no inclination for law, he engaged in commerce with his brothers as a silent partner, but devoted his time to literature, and in 1813 edited the *Analectic Magazine*, in Philadelphia. At the close of the war in 1815 he visited England, where he was warmly welcomed by Campbell, whose biography he had formerly written, and was introduced by him to Walter Scott. While he was enjoying his English visit his commercial house failed, and he was suddenly reduced to poverty, and the necessity of writing for his bread. The *Sketch-book*, portions of which had appeared in New York, was offered to Murray, and afterwards to Constable, but was refused by both of these celebrated publishers. After an unsuccessful attempt of the author to publish it on his own account, Murray, on Scott's recommendation, took the *Sketch-book*, paying £200 for the copyright,

which he afterwards increased to £400. It had a charm in its beauty and freshness, and was a surprise as the work of an American, and was therefore received with great favor. Irving went to Paris, and in 1822 wrote *Bracebridge Hall*, and in 1824 the *Tales of a Traveler*. He was then invited by Everett, the American ambassador to Spain, to accompany him to Madrid, to translate documents connected with the life of Columbus. With these materials he wrote his *History of the Life and Voyages of Columbus* (1828); *Voyages of the Companions of Columbus; The Conquest of Granada; The Alhambra* (1832), a portion of which was written in the ancient palace of the Moorish kings; *Legends of the Conquest of Spain* (1835); and *Mahomet and his Successors* (1849). In 1829 Irving returned to England as secretary to the American legation. In 1831 he received the honorary degree of LL.D. from the university of Oxford; and next year returned to America, where he was received with great enthusiasm. A visit to the Rocky mountains produced his *Tour on the Prairies*. He also contributed sketches of Abbotsford and Newstead abbey to the *Crayon Miscellany*, and from the papers of John Jacob Astor wrote *Astoria* (1837), and the *Adventures of Captain Bonneville;* also a series of stories and essays in the *Knickerbocker Magazine*, collected under the title of *Wolfert's Roost*. In 1842 he was appointed minister to Spain. In 1846 was published his *Life of Goldsmith;* and his great work, the *Life of Washington*, was published in 1855–59. An edition of his works in 15 vols. reached a sale of 250,000 vols. He spent the last years of his life at Sunnyside, in his own "Sleepy Hollow," on the banks of the Hudson, near Tarrytown, with his nieces, where he died suddenly of disease of the heart, Nov. 28, 1859. He was never married.

IRVING, WILLIAM, 1766–1821; b. N. Y., brother of Washington. He was an Indian trader on the Mohawk river, 1787–91; and in 1793 a merchant in New York. In that year he married a sister of James K. Paulding, and was associated with him and Washington Irving in the publication of *Salmagundi*, contributing to it most of the poetical articles. He was a member of congress 1813–19, but resigned on account of ill health.

IRVINGITES, the common but improper designation of a body of Christians who object to any designation which implies sectarianism, and therefore use no other name than the *Catholic Apostolic Church*. In the winter of 1829–30, the rev. Edward Irving (q.v.), then a minister of the Scotch church, Regent square, London, delivered a series of lectures on spiritual gifts, in which he maintained that those which we are in the habit of calling "extraordinary" or "miraculous" were not meant to be confined to the primitive church, but to be continued through the whole period of the present dispensation. About the same time, as if to confirm the views of the great preacher, there occurred at Port-Glasgow, in the w. of Scotland, certain strange phenomena. It was alleged that miraculous acts of healing had happened, and that the gift of tongues had reappeared. After what seemed to be a sufficient investigation on the part of some of the members of Mr. Irving's church, it was concluded that the manifestations were genuine. Similar manifestations shortly after occurred in his own church, which were also pronounced to be genuine. They were held to be of two kinds: 1st, speaking in tongues, and 2d, prophesying. As the former bore no resemblance to any language with which men were conversant, it was believed to be strictly an "unknown tongue," the Holy Ghost "using the tongue of man in a manner which neither his own intellect could dictate, nor that of any other man comprehend." The latter, "prophesying," consisted chiefly of "exhortations to holiness, interpretations of Scripture, openings of prophecy, and explanations of symbols." After some time, Irving was deposed from his office for heresy by the church of Scotland, but meanwhile the religious opinions with which his name is associated had been assuming a more definite and ecclesiastical shape. The final result was the *Apostolic Catholic Church*, the constitution of which is briefly as follows:

There are, as in the apostolic times, *four* ministries: 1st, that of "apostle;" 2d, that of "prophet;" 3d, that of "evangelist;" and 4th, that of "pastor." The apostles are invested with spiritual prerogatives; they alone can minister the Holy Ghost by the laying on of hands; to them the mysteries of God are revealed and unfolded to the church; and they decide on matters of order and discipline. Nothing that transpires in any church in the way of "prophetic utterance" can be authoritatively explained save by them; and the various "angels of the churches" are bound to bring all such utterances under their cognizance, in order that they may be rightly interpreted. The function of the "prophet" has been already indicated. The work of an "evangelist" mainly consists in endeavoring to "bring in" those who are without. The "angel" of the Catholic Apostolic church corresponds with the bishop of other Christian denominations. The ministers of each full congregation comprise an angel, with a fourfold ministry (consisting of elders, prophets, evangelists, and pastors), and a ministry of deacons to take charge of temporal matters. This ministry is supported by tithes, the people giving a tenth of their income for the support of the priesthood. Church affairs are managed by a council of ministers of all classes, whose selection and arrangement are conceived to have been foreshadowed in the structure of the Mosaic tabernacle.

The Catholic Apostolic church does not differ from other Christian bodies in regard to the common doctrines of the Christian religion; it only accepts, in what it considers to be a fuller and more real sense, the *phenomena* of Christian life. It believes that the wonder, mystery, and miracle of the apostolic times, were not accidental, but are essential to the divinely instituted church of God, and its main function is to prepare a people

for the second advent of Christ. A very special feature of the Catholic Apostolic church is its extensive and elaborate symbolism. In regard to the sacrament of the Lord's Supper, the doctrine of the objective presence is held, but both transubstantiation and consubstantiation are repudiated.

The Catholic Apostolic church has established itself in England, Scotland, Canada, the United States, Prussia, France, Switzerland, Ireland, Belgium, Russia, Denmark, Sweden, Australia, and India. In the U. S. it has 10 churches; about 30 ministers.

IRWIN, a co. in s. Georgia, bounded n.e. by the Ocmulgee, and intersected by the Allapaha; 850 sq.m.; pop. '80, 2,696. It is level and sandy, and extensively covered with pine forests. It produces some oats and maize. Capital, Irwinville.

IRWIN, JARED, 1751–1818; b. Mecklenburg co., N. C; at an early age removed with his parents to Georgia. In the revolution he was active against the tories and the Indians. After the war he was chosen to the state legislature, was a member of the convention which adopted the constitution in 1789, president of the state constitutional convention of 1798, president for many years of the senate, and governor of Georgia, 1790–98 and 1806–9. Removing to Pennsylvania, he was member of congress from that state, 1813–17.

ISAAC ("he will laugh"), a Hebrew patriarch and pastoral chief, was the son of Abraham and Sarah, and half-brother of Ishmael. His birth happened when both his parents were advanced in age. The incidents of his life, as recorded in Genesis, are well known. He died at Hebron, aged 180 years, leaving two sons, Jacob and Esau.—Isaac's character has always been very differently interpreted. What has been called by some his mild and gentle disposition, simple pastoral piety, others have termed weakness and want of character. His (for the most part) blameless ways, however, call forth our love and esteem. The Midrash ascribes to him, in allusion to Gen. xxiv. 63, the institution of the afternoon prayer.

ISAAC (*ante*) was distinguished for obedience to his father, combined with resignation to the will of God. These traits of character were conspicuous in his quiet submission to being bound upon the altar. This event has had various explanations, and its account has been viewed in different lights. It has been denied that it was a divine voice which called for the sacrifice. The usual view, however, holds to the obvious meaning of the narrative. Among different explanations in this view, may be noted the following, which reads this history in the light which the completed Scriptures throw backward upon it. It was needful that Abraham, as the father of the faithful, should exercise such trust in God as would make him, in that day of darkness and idolatry, the founder of a godly line and an example to believers even in distant times. It was therefore requisite that he should have his knowledge of God's plans increased in order that it might furnish a foundation for great and conspicuous faith. This was done chiefly by means of the land in which he sojourned, and of Isaac his son. The promise that the land should be given to his descendants was one of the first stones of the foundation on which his faith was built; to this was added the assurance that a son should be born to him in his old age. When, 25 years after his entrance into Canaan, this second promise was fulfilled, the living son, the heir of the promises, became the means of a great increase to Abraham's knowledge, and confirmation of his faith. He was taught not only that Isaac represented the Messiah, the Divine deliverer, who was to descend from him, but also that the Messiah by offering up himself unto death would make atonement for the sins of men. Therefore his offering of Isaac was demanded, and made actual through all its stages to the moment when his life was on the point of being taken; and was then completed by the substitution of the victim which Abraham was directed to slay instead of his son. Thus Isaac manifested a Christlike obedience and submission even unto death; while the actual death inflicted on the other victim represented the completion of the sacrifice to which his greater son would deliver himself up. Abraham's own experience also was made representative of God's great sacrifice in salvation. He went through all the anguish that a father's heart could experience in inflicting death on a beloved son without actually striking the final blow; and even this he had so fully intended to strike, and had come so near striking it, that he must have passed through almost all the bitterness of which his soul was capable. Thus was he taught, as fully as possible before the event, the feelings of Christ and of the Father which have since been indicated by the Scripture words, "Father, if it be possible, let this cup pass from me;" "My God, why hast thou forsaken me;" "God spared not his own Son, but delivered him up for us all." In this way also Abraham was brought to exercise faith concerning the resurrection of the dead, as completely as was possible before the actual resurrection of Christ; so that the New Testament says of Abraham that he offered up his son on whom the promises rested, "accounting that God was able to raise him up even from the dead; whence also he received him in a figure. It is probable that no single view likely to be reached by modern thought solves all the mystery or presents all the Divine truth involved in this scene from a remote antiquity."

Isaac's love for his wife, prominent in the scriptural record, is obscured by only one act, in which evidently he was betrayed into cowardly selfishness in persuading his wife to deny the conjugal relationship between them, because, as he afterwards acknowledged, he said, "Lest I die for her." Yet this great fault of his life is hardly to be regarded

as a betrayal of a real character which had been habitually concealed, but rather as an exceptional overwhelming of his better nature by the power of ungovernable fear. In this respect he may have resembled his father, who sinned twice in the same way, yet not in accordance with his usual character, but in glaring contrast to it. In his youth Isaac was thoughtful, in manhood increasingly reflective, and through all his life prayerful and devout. In his treatment of his children he was unwisely partial; and as, while he preferred one son, Rebecca favored the other, it is probable that they both promoted that alienation between the brothers which afterwards so unhappily increased. In disposition he was peaceful and forbearing, preferring to suffer wrong rather than contend violently for his rights. In business relations he was upright; in agriculture he was successful, and became exceeding rich in servants, flocks, and herds. In old age he was disquieted with bodily infirmity and domestic grief. He died full of days, and is one of those concerning whom the certain revelation has been put on record that he has a place in the kingdom of heaven.

ISAAC I., COMNENUS, Emperor of Constantinople, was the first of the family of the Comneni who attained to that dignity. His father Manuel, his brother John, and himself were employed in important military and civil capacities by Basil II. (976–1025); but during the reign of the latter's imbecile and tyrannical successors, in whose eyes it was criminal for any one to excel in wisdom and ability, Isaac was exposed to considerable danger. Such, however, was his prudence, and the affection of the people for him, that the emperors unwillingly suffered him to live unmolested; and on the deposition of Michael VI. (1056–1057), Isaac was elevated to the vacant throne. On his accession he found the affairs of the empire in what was by this time their normal condition; rebellion within, aggression without, and the treasury exhausted. He succeeded in establishing a system of great economy in all branches of the administration, and in order still further to lighten the taxes on the people, called upon the clergy to contribute their share. But the clergy, then as now, refused to endure the imposition of any such burdens, and the patriarch Michael is reported to have even threatened him with deposition. But death delivered Isaac of this formidable opponent, and the clergy were compelled to submit. In 1059 he repelled the Hungarians, who had encroached upon his possessions in the n.w.; but soon afterwards, to the great grief of his subjects, he was attacked by a violent fever, and believing his dissolution approaching, appointed his famous general, Constantine Ducas, as his successor. He, however, recovered from his illness, but resigning the crown, retired to a convent, where he lived for two years in the odor of sanctity, and died in 1061. He was one of the most virtuous emperors of the east, and to great learning, wisdom, and prudence, united an administrative ability and energy, that would, had his reign been of longer duration, have gone far to regenerate the effete Byzantine empire. Nor was he deficient in literary attainments. We still possess by him Scholia—hitherto unedited—on Homer, his favorite author; further, a work, *Characteristics*, scil., of the Greek and Trojan chiefs mentioned in the *Iliad;* and finally, a treatise *On the Works of Homer*.

ISAAC II., ANGELUS; 1154–1204; a Byzantine emperor. Delivered by a popular revolution from death, to which he had been condemned by his kinsman, Andronicus Comnenus, emperor of Constantinople, he obtained the throne, 1185. His vices and incapacity rendered him unpopular, and he was dethroned by his brother, Alexis III., 1195, and deprived of his sight, but restored by the crusaders who took Constantinople, 1203. He was again dethroned by Alexis Ducas, and put to death.

ISAAC, LEVITA, a distinguished Jewish rabbi, b. at Wetzlar, Germany, 1515. He joined the Roman Catholic church with his son, 1546. He was professor of Hebrew and Chaldee at Louvain, and in 1551 at Cologne. He was the author of several learned grammatical works, and also translations. His name after his conversion was John Isaac Levi. The date of his death is unknown.

ISABELLA, a central co. of Michigan, intersected by the Chippewa river; 576 sq.m.; pop. '80, 12,159. The surface is generally level, and largely covered with forests of pine and sugar-maple. Productions: wheat, oats, maize, hay, and potatoes. The Flint and Père Marquette railroad passes through the n.e. part. Capital, Mt. Pleasant.

ISABELLA of Castile, queen of Spain, b. on April 23, 1451, was the daughter of John II., king of Castile and Leon, and in 1469 married Ferdinand V., surnamed "the Catholic," king of Aragon. On the death of her brother, Henry IV., in 1481, she ascended the throne of Castile and Leon, to the exclusion of her elder sister Joanna. She had won the support of great part of the states of the kingdom during her brother's life, and the victorious arms of her husband compelled the consent of the rest (see FERDINAND). Isabella was a woman of remarkable energy and talent, and possessed no inconsiderable beauty and much winning grace, although proud, ambitious, and deficient in true womanly gentleness. She was always present in meetings of council, and insisted on the use of her name along with that of Ferdinand in all public documents. She died at Medina del Campo, on Nov. 26, 1504, after having exacted from her husband, of whom she was always jealous, a promise, confirmed by oath, never to marry again.

ISABELLA II. (Maria Isabel Luisa), ex-queen of Spain, the elder daughter of Ferdinand VII. by his fourth wife, Maria Christina, of the Two Sicilies, was b. at Madrid, Oct. 10, 1830, and by a decree which set aside the Salic law in Spain, and was confirmed by the cortes, Mar. 29, 1830, became the heiress-apparent to the throne, which she ascended on the death of her father in Sept., 1833, her mother being appointed queen-regent. An insurrection in favor of her uncle, Don Carlos (q.v.), who, according to the Salic law, would have succeeded to the throne, immediately broke out in the north-eastern provinces, and raged with great violence for seven years, but was ultimately suppressed by the aid of Britain, France, and Portugal. During this tumultuous epoch, effective internal administration was impossible, and it was necessary to conciliate as far as possible all parties, in order to prevent desertions to the Carlists. Before the revolt had been crushed, which was conclusively effected in 1839, politicians had begun to divide into two classes, the *moderados*, or "conservatives," and the *exaltados*, or "liberals;" and though the queen-regent sided with the former party, she found it necessary to enlarge the liberal constitution of 1834, and ultimately (1837) to re-establish the constitution of 1812. The attempts of the moderados to inaugurate a more narrow policy in 1839 failed, and Maria Christina was forced to flee to France, leaving the regency and the care of the young queen to Espartero (q.v.). On Nov. 8, 1843, the queen was declared by the cortes to have attained her majority; and this was followed soon after by the return of the queen-mother, the military dictatorship of Narvaez, and an anti-liberal policy. The question known as the "Spanish Marriages," which at that time agitated the different courts of Europe, was settled by French influence, the queen marrying her cousin, Don Francisco d'Assisi, eldest son of Ferdinand VII.'s youngest brother (Oct. 10, 1846); while her sister, Maria Ferdinand Luisa, espoused the Duke of Montpensier, the fifth son of Louis Philippe. This marriage of the queen, based wholly upon the political interests of the party in power, has been fruitful of domestic annoyances, estrangements and reconciliations rapidly succeeding each other. After eight years of authority, during which he had repressed all liberalism with an iron hand, and foiled the intrigues both of the Carlists and the king-consort, Narvaez gave place to Murillo (Jan., 1851), who began by promising liberal reforms, and agreed to a concordat with the pope. A change to almost purely absolute government in 1853, was followed by the banishment of many chiefs of the constitutional party, and a formidable rising of the army took place. The queen-mother fled to France, and Espartero was once more put at the head of an administration in which liberal principles held sway. But the queen disapproving of his policy, he resigned in favor of O'Donnell, July 14, 1856, who was soon after supplanted by Narvaez; and the latter, in turn, had (Oct., 1857) to make way for a liberal government. In July, 1858, O'Donnell was restored to power, and with the exception of a brief interval in June, 1865, in which Narvaez was president of the council, maintained himself in the premiership till his death, Nov., 1867. The chief foreign events of Isabella's reign were —repeated negotiations of the United States with Spain, with the view of purchasing the island of Cuba; the rectification of the Pyrenean frontier; the successful war with Morocco (q.v.); the annexation and subsequent evacuation of St. Domingo (see Hayti); and the discreditable squabbles with the republics of Chili and Peru. The nation became more and more impatient under the despotic rule of the last years of Isabella's reign; and at length, in Sept., 1868, a revolution broke out, which ended in the formation of a republican provisional government, and the flight of Isabella to France. In 1870 she renounced her claim to the throne in favor of her son, Alfonso (chosen king in 1874). She returned to Spain in 1878.

ISABELLA THE CATHOLIC, Order of, a Spanish order of knighthood, founded by Ferdinand VII., in 1815, as a reward of loyalty, and for the defense of the possessions of Spanish America. It is now conferred for all kinds of merit. The sovereign is the head of the order, which is divided into the three classes of grand crosses, commanders, and knights.

ISABELLA of ENGLAND. See Edward II. and III., *ante.*

ISABEY, Jean Baptiste, 1767–1855; b. France. He was a pupil of the celebrated painter David, and began his profession by making crayon portraits, but devoted most of his life to miniature-painting, in which he became very eminent. His picture of Napoleon, 1802, reviewing his troops, gained for him great renown, and he became the emperor's miniature-painter. The members of the imperial family, the marshals and other dignitaries of the empire, sat to him, and he was invited to visit Alexander of Russia. His *Tableaux des Maréchaux* and the *Conference of Vienna* are fine large historical paintings.

ISÆUS, b. probably at Chalcis, though claimed by Athens. The dates of his birth and death are unknown, though it is certain that he became eminent as an orator the last half of the 4th c. B.C. He was the son of Diagoras. In his youth he was at one time dissipated and extravagant, but afterwards reformed. He went when young to Athens, studied oratory under Lysias and Isocrates, and taught with success a school of rhetoric of which Demosthenes was a pupil. He was the fifth in order of the 10 Attic orators, and is mentioned by Plutarch, in his *Lives of the Ten Orators*, as the author of 64 orations. Only 11 are extant. They are all forensic, and treat mostly of subjects relating to disputed wills. His style, though elegant and vigorous, lacks the perspicuity

and simplicity of his master Lysias. An English translation by sir William Jones was published in London in 1794, with a commentary and notes critical and historical.

ISAI'AH (Heb. *Yeshayahu*, "Salvation of God"), the most sublime of the Hebrew prophets, was the son of one Amoz. He uttered his oracles in the reigns of Uzziah, Jotham, Ahaz, and Hezekiah, kings of Judah. Regarding his outward life, almost nothing is known. He appears to have resided at Jerusalem, in the vicinity of the temple, was married, and had three sons, given him, he says, "for signs and for wonders in Israel." The period of his death is not known, but according to a rabbinical legend, apparently accepted by the writer of the Epistle to the Hebrews (xi. 37), (Sanh. 103 *b*, etc.), he was sawn asunder by order of king Manasseh, who abhorred his oracles (cf. Jos. Ant. x. 31). If this statement is well founded, Isaiah must have been nearly 100 years old when he was thus barbarously murdered.—The prophecies of Isaiah, viewed in their literary aspect, do not exhibit a continuous unity of design; they consist of a series of "visions" beheld at different times, and arranged neither exactly in chronological nor material order. The compiler or editor of the whole is believed by many not to be Isaiah himself. Verse 38th of chap. xxxvii. is regarded by the majority of scholars of note as conclusive proof of a later hand. The grand controversy, however, is not concerning the arrangement of these prophecies, but concerning their authorship. Did they all proceed from one and the same person, or are different authors discernible? Orthodox critics maintain the unity of authorship, and assert that Isaiah, if he did not edit, certainly wrote the whole 66 chapters. The first who doubted this was the German scholar Koppe (1779–81), who suspected that the last 27 chapters (40 to 66) were the work of a later hand. He was followed by Döderlein, Eichhorn, and Justi, and the same view has been substantially adopted by Paulus, Bertholdt, De Wette, Gesenius, Hitzig, Knobel, Umbreit, and Ewald. The chief arguments against the Isaiah-authorship are: 1. That the subject-matter of these burdens relates to what happened long after Isaiah's death, 100 years at least, viz., the redemption of the Jews from captivity, consequent upon the overthrow of the Babylonian monarchy by the Medo-Persian army. 2. That the writer speaks of the exile as something present, and of the desolation of Judah as a thing that had already taken place. 3. That Cyrus is mentioned by name, and an intimate knowledge exhibited of his career. 4. That an extraordinarily minute acquaintance with the condition and habits of the exiles is shown. 5. That the sentiments are far more spiritual. 6. That the style is totally different, being more smooth, flowing, rhetorical, and clear. To these objections, Hengstenberg, Hävernick, Keil, Henderson, Jahn, Möller, Alexander, and others have replied more or less satisfactorily. Their principal argument is the predictive character of prophecy. In these prophecies, we have the first distinct and vivid announcements of a Messianic deliverer (whence Isaiah has been called the "Evangelical prophet"). As, however, they are found chiefly in the last 27 chapters (the supposed work of a deutero-Isaiah), it has been made a question, by those who do not believe in prophecy in the usual sense, whether the "deliverer," who redeems the people by his own sufferings, is a literal prediction of Jesus Christ on the part of the prophet, or only a personification of the sanguine hope of deliverance that animates his patriotic and religious soul.

The style of Isaiah possesses an astonishing richness and variety. It reaches the pinnacle of grandeur, and melts into the softest pathos. Ewald, a master of æsthetic as well as of philologic criticism, attributes to him "the most profound prophetic excitement and the purest sentiment, the most indefatigable and successful practical activity amidst all perplexities and changes of outward life, and that facility and beauty in representing thought which is the prerogative of the genuine poet. . . . . In the sentiments which he expresses, in the topics of his discourses, and in the manner of expression, Isaiah uniformly reveals himself as the kingly prophet" (*Propheten des Alten Bundes*, vol. i. p. 166, etc.). Among the chief commentators on Isaiah are Jerome, Aben-Ezra, Abarband, Vitringa, Lowth, Henderson, Calmet, Hitzig, Rosenmüller, Gesenius, Hengstenberg, and Alexander.

ISAIAH, PROPHECY OF (*ante*). The reasons alleged by some critics, within this century, for denying that Isaiah wrote the last 27 chapters of the book called by his name are: 1. As, according to a tradition mentioned in the Talmud, the order in which the three great prophets were arranged was originally Jeremiah, Ezekiel, and Isaiah, it is to be inferred that Isaiah was placed last because of a suspicion which somewhere existed that the latter part had been written after Ezekiel. To this it is answered that the inference would not be warranted even if the alleged order of arrangement were certain; but that it is not certain or probable is shown by a witness earlier than the Talmud, that is, the author of Ecclesiasticus, who refers to the three prophets in the order in which they now stand—Isaiah, Jeremiah, and Ezekiel. 2. The writings of the prophets who lived after Isaiah, and before the captivity, do not show an acquaintance with the second part of the prophecy. To this it is answered: (1) that the fact would not prove the non-existence of the second part when these prophets wrote; and (2) that in fact, as will hereafter be more fully shown, Jeremiah and other prophets of the time specified, do quote this second part (yet the objector insists that, on the contrary, it contains quotations from them). 3. The last part differs from the first in style and religious views. To this, other critics reply that no differences exist which are inconsistent with unity of authorship;

that the first part contains the germs of the principal things exhibited in the second; and that the style of the latter part greatly resembles that of the former, although it naturally rises in fulness and sublimity as the scope of the prophecy is enlarged. 4. Isaiah lived more than a century before the captivity in Babylon, and did not once foretell it; but as the author of the second part narrated so fully the special condition of the Jews at that time, and the general oriental relations, even calling Cyrus by name, he must have been an eye-witness of what he described. The answers to this are: (1) This reasoning, which is simply the assumption that absolute prediction is impossible, will appear without force to those who take notice that the prophet ascribes all the predictions which he records to God as their author, who claims the prerogative of foretelling the future, and exercises it in regard to Cyrus, Babylon, and the Jews, for the express purpose of revealing himself to those who did not know him. (2) If the reason alleged proved that the second part of the prophecy was written after, or at, the captivity, it would equally prove that it was written after, or at, the coming and crucifixion of Jesus Christ; for these events are described in it as clearly as is the deliverance of the Jews by Cyrus. (3) In the first part of the prophecy Isaiah does foretell the captivity in Babylon. In chapter i. he promises a restoration and redemption which admit of a primary reference to the return from captivity; in vi. he speaks of a time when the cities of Judah would be wasted without inhabitant, the houses be without man, the land be desolate, and the men be removed far away; xxxix., he tells Hezekiah: "Behold, the days come, that all that is in thy house, and that which thy fathers have laid up in store until this day, shall be carried to Babylon: nothing shall be left;" xiii., xiv., he foretells that the Lord would stir up the Medes against Babylon, would set Israel in their own land, and that in the day of their deliverance they should say concerning Babylon: "How hath the oppressor ceased, the golden city ceased!"

Proofs that the last 27 chapters were written by Isaiah.—I. *External.*—1. There is evidence that several of the prophets who wrote before the Jewish captivity were familiar with this part of Isaiah, alluded to it and quoted it. While the full force of this evidence can be felt only after a careful comparison of many passages in the original language, part of it can be at once appreciated. Isaiah lii. 1, 7 says: "There shall no more come into thee the uncircumcised and the unclean. How beautiful upon the mountains are the feet of him that bringeth good tidings, that publisheth peace;" and Nahum, who wrote about 660 B.C., says: "Behold upon the mountains the feet of him that bringeth good tidings, that publisheth peace. O Judah, the wicked shall no more pass through thee." Isaiah xlvii. 8 says to Babylon: "Thou that art given to pleasures, that dwellest carelessly; that sayest in thine heart, I am, and none else beside me;" and Zephaniah, about 625 B.C., applies the same language to Nineveh: "This is the rejoicing city that dwelt carelessly, that said in her heart, I am, and there is none beside me." An examination of the contexts will show, it is believed, that Isaiah is the earlier writer from whom the others quote. Consequently it is plain that the latter part of his prophecy existed long before the captivity. 2. The book of Ezra and the second book of Chronicles give the decree of Cyrus liberating the Jews, in which he says: "All the kingdoms of the earth hath the Lord God of heaven given me, and he hath charged me to build him a house in Jerusalem." On the supposition that Daniel and other Jews had at Babylon the book of Isaiah containing these last chapters, the action of Cyrus, on being made acquainted with their declarations concerning himself, was simply that which an intelligent and upright man would naturally feel stirred up to perform. But on the supposition that the book contained only the first 39 chapters, then for the great historical facts of the return of the Jews to their own land, of the grant to them of royal treasures for rebuilding their temple, and of the conqueror's official acknowledgment of obligation to God, whom he had not known, no sufficient reason is assigned. 3. The book of Isaiah as it stands in the Hebrew canon has 66 chapters. If it had, at first, contained only 39, an addition of 27 chapters of any sort, and especially of the 27 now forming the latter part, could not have been made to it, at any subsequent time, without some record, or proof, or intimation remaining concerning the agent, author, process, or time. But in this case nothing of the kind has ever been seen or heard of. 4. The book of Ecclesiasticus, written in Hebrew after 300 B.C., in eulogizing the succession of Scripture characters, speaks of Isaiah as "the prophet who was great and faithful in his vision; in his time the sun went backward, and he lengthened the king's life. He saw by an excellent spirit what should come to pass at the last, and he comforted them that mourned in Zion. He showed what should come to pass forever, and secret things ere ever they came." This description, affirming Isaiah's prophetical eminence in Hezekiah's time, speaks chiefly of things contained in the last 27 chapters, and links them firmly with the first part, characterizing the xl. and lxi. when it says: "he comforted them that mourned in Zion;" the xlii. when it speaks of "showing secret things ere ever they came;" and the close of the book, when it points to things that "should come to pass forever." This short passage, therefore, shows that the writer of Ecclesiasticus had the book of Isaiah in its integrity as we have it now. 5. In the Septuagint translation of the Old Testament, made about 250 B.C., the book of Isaiah consists of 66 chapters. At that time, therefore, the whole book must have been in circulation as it is now. 6. When the Savior went into the synagogue at Nazareth there was delivered to him "the book of the prophet Esaias," and, having opened it, he found the place where it

was written: "The Spirit of the Lord is upon me, because he hath anointed me to preach the gospel to the poor." This passage is part of the lxi. chapter. When the treasurer of Candace was returning from Jerusalem he read in his chariot Esaias the prophet; and the passage that he asked Philip to expound—"He was led as a sheep to the slaughter"—is in the liii. chapter. Paul, in Romans, affirms "Esaias saith, 'Lord, who hath believed our report?'" This also is part of the liii. chapter. Again he declares: "Esaias is very bold, and saith, 'I was found of them that sought me not. . . . All day long I have stretched out my hands to a disobedient and gainsaying people.'" This is in the lxv. chapter. From the New Testament, therefore, it is plain that the book of Isaiah at the time of Christ contained these 27 chapters as it contains them now.

II. *Internal.*—Two items only of the internal proof that Isaiah was the author of the whole book can here be given. 1. The first chapter is an introduction, not merely to the first part, but to the whole book, and in its closing verses bears a marked resemblance to the last 27 chapters. After its condemnation of Judah and Jerusalem for their sins, it promises a future purification and redemption, and ends with declaring that incorrigible sinners shall be destroyed. "Zion shall be redeemed with judgment, and her converts with righteousness. And the destruction of the transgressors and of the sinners shall be together." The last 27 chapters contain three sections, of 9 chapters each, all promising a future salvation, and all ending with declaring the destruction of the wicked. The first section, referring primarily to deliverance from captivity and idolatry, says: "Go ye forth of Babylon, utter it to the end of the earth, say ye: The Lord hath redeemed his servant Jacob. . . . There is no peace, saith the Lord, to the wicked." The second section, referring especially to a spiritual salvation, says: "Peace, peace to him that is far off, and to him that is near, saith the Lord; and I will heal him. . . . There is no peace, saith my God, to the wicked." The third section promises the new heavens and the new earth, which are to continue forever, and intensifies the declaration of destruction to the wicked. And as the introduction, in the first chapter, closes with declaring that the mighty sinner and his work "shall both burn together, and none shall quench them," so the whole book closes with the dreadful sentence: "Their worm shall not die, neither shall their fire be quenched; and they shall be an abhorring unto all flesh." 2. Through the book of Isaiah—the first part and the last—there is a series of prophecies concerning the Messiah which demonstrates the unity of the whole. Some of these are the following: in chap. ii. the prediction springs at once to the last days, when the mountain of the Lord's house shall be established in the top of the mountains, and men shall learn war no more; in chap. vii. it promises the birth of a virgin's son, who should be named Immanuel, as a sign of the son of Mary; in the ix. it glorifies the way of the sea, beyond Jordan, Galilee of the nations, and proclaims joyful tidings concerning the child that should be born, one of whose names would be the mighty God, and whose government and peace should increase forever; in the xi. it declares that a rod should come forth out of the stem of Jesse, on whom the Spirit of the Lord should rest; in the xxxii. it announces that there should come a man as a hiding-place from the wind, and a covert from the tempest; in the xxxv. it affirms that the wilderness and the solitary place should be glad, and the ransomed of the Lord return and come to Zion with songs and everlasting joy upon their heads; and in the last 27 chapters it expands all these promises, beginning with the voice of the forerunner in the wilderness, revealing the glory of the suffering Messiah, and foretelling the new heavens and the new earth.

Analysis.—The book contains two prophetical parts with intervening chapters in which history and prophecy are closely combined. *Part I.* contains 35 chapters. Chapter i. is introductory, as has been said, to the whole book; ii.–iv. announce the Messiah's kingdom and judgments on transgressors; v. pronounces condemnation on Israel and Judah under the emblem of a cherished vineyard that yields only evil fruit; vi. records the prophet's vision of the glory of the Lord, and foretells a mingling of judgments and mercy; vii. promises a child, as a sign from the Lord, whose birth would soon be followed by the desolation of the land of the two hostile kings; viii. denounces judgments on Israel and Judah under the emblem of the prophet's son whose name signifies, "Hasten the spoil, rush on the prey;" ix. foretells the birth and the divine nature of the Messiah; x. describes the advancement and defeat of the Assyrians; xi., xii., portray the blessings of the Messiah's kingdom; xiii.–xxiii. contain a series of "burdens," to be borne by Babylon, Philistia, Moab, Damascus and Israel, Ethiopia, Egypt, Assyria and Israel, Egypt and Ethiopia, the desert of the sea, Dumah and Arabia, Jerusalem and Shebna, and Tyre; xxiv.–xxvi. announce judgments and sorrow on account of sin, followed by the blessings and joy of salvation; xxvii. represents the punishment of Assyria and Egypt under the emblems of the leviathan and the dragon of the sea; xxviii.–xxxi. proclaim judgments on Israel and Jerusalem mingled with mercies; xxxii. promises the Messiah under various emblems; xxxiii., xxxiv., foretell judgments on the nations, mingled with mercy to the people of God; xxxv. closes the first part with a glorious prediction of the Messiah. *Intermediate chapters* (xxxvi.–xxxix.) in which history is combined with prophecies that were fulfilled immediately, except that, in mercy to Hezekiah, the captivity threatened was deferred. *Part II.*, consisting of 27 chapters, and comprising prophecies concerning the whole work of redemption from the rebuilding of Jerusalem to the new creation, is subdivided into three

sections of 9 chapters each. *Section* 1 (chapters xl.–xlviii.), in which both the Messiah and Cyrus are promised as deliverers, with the latter, as first to come, emphatically named and described in the central place. *Section* 2 (xlix.–lvii.), promising the Messiah alone, assigns his sufferings, death, and consequent glory the central place. *Section* 3 (lviii.–lxvi.), exhibiting the glory only of the Messiah, gives the central place to Zion as the bride.

ISAMBERT, François André, 1792–1857; b. France. He distinguished himself greatly at the bar by his defense of the free colored people of the French West Indies. He assisted in forming the French geographical society, and the society for the abolition of slavery. He was a voluminous writer. Among his works were a *Manual for the Publicist and Statesman; The Religious Condition of France and Europe; A History of Justinian; History of the Origin of Christianity;* a translation of the works of Josephus and of the *Ecclesiastical History* of Eusebius, besides numerous articles contributed to periodicals.

ISANTI, a co. of Minnesota, intersected by the St. Francis or Rum river; 490 sq.m.; pop. 80, 5,063. The surface is diversified with forests and lakes. The soil is fertile, producing wheat, oats, maize, grass, and potatoes. Capital, Cambridge.

I'SAR, or Iser, a river of Germany, rises in the Tyrol, to the n. of Innsbruck, and, entering Bavaria, flows generally in a n. and n.e. direction, and joins the Danube at Deggendorf, after a course of about 180 miles. Munich and Landshut are situated upon its banks. In the first part of its course, it is an impetuous mountain torrent; and even after it leaves the Alps it has many rapids and islands, but for a great part of its course it is navigable for boats. Much wood is floated down the Isar from the mountains.

ISAURIA, a tract of country in Asia Minor on the n. side of Mt. Taurus between Phrygia, Lycaonia, Cilicia, and Pisidia. The Isaurians were a wild and half barbarous people, living by plunder and rapine, and greatly annoyed the Roman and Byzantine rulers. They have displayed an indomitable spirit from the earliest times. When opposed by superior numbers they fled to their mountain fastnesses. They were equally formidable at sea, and with their Cilician neighbors ravaged the eastern seas with their piracies. In 78 B.C. they were reduced to a temporary submission by the Romans, but soon renewed their raids, keeping their neighbors in constant alarm. The Romans endeavored to surround their country with a chain of fortresses. In the 3d c. they formed one nation with the Cilicians, and one of their number proclaimed himself Roman emperor, but was put to death. In the 8th c. two of their number, Zeno and Leo III., obtained the throne of the eastern empire. The capital, Isaura, at the foot of Mt. Taurus, the only important city, was a large, rich, and well-fortified place. It was burned, together with its inhabitants, by the Isaurians when unable to withstand the siege of Perdiccas. The country was rocky and barren, producing chiefly the vine, which was cultivated with care.

ISCHIA (the ancient *Ænaria*), an island situated between the bay of Naples and that of Gaeta. It is about 37 sq.m. in extent, and has a population of 28,000 inhabitants. Ischia is a favorite place of summer resort, and is noted for the excellence of its mineral waters and numerous springs, the great richness of its soil, the exquisite flavor of its fruits and wines, and the enchanting character of its scenery. Its highest point is the volcanic Monte Epomeo, 2,574 ft. above the level of the sea, of which the eruptions have been numerous and disastrous; that of 1302 was of two months' duration, and occasioned a serious loss of life and property. The lake of Ischia appears to occupy an extinct crater of the volcano, and abounds in fish.

ISCHL, a small t. of upper Austria, surrounded on all sides by gardens, is finely situated on the river Traun, amid magnificent alpine scenery, 28 m. e.s.e. of Salzburg. It is the chief town of the district called the Salzkammergut (q.v.). The situation of Ischl, and the salt baths, which were established here in 1822, have attracted to it vast numbers of visitors. The emperor and many of the Austrian nobility have built villas here, and the town has also acquired celebrity from having been the scene of various diplomatic conferences. Pop. '80, 7,678. Much salt is manufactured here.

ISE'O, Lake, or Lacus Sevinus, a lake of northern Italy, situated between the provinces of Bergamo and Brescia. Its extreme length from n. to s. is about 20 m.; its average breadth, 6 m.; and its greatest depth, 984 feet. On its banks is situated the town of Iseo. The lake is fed by the rivers Oglio and Borlazzo. The surrounding scenery is highly interesting, broken into picturesque heights, and studded with fine villas, vineyards, and olive-gardens.

ISÈRE, a river of the s.e. of France, rises in Savoy, at the western base of Mt. Iseran, flows in a general s.w. direction through Savoy, and through the departments of Isere and Drome, and joins the Rhone 8 m. above Valence. Its entire length is about 190 m., for the last 50 of which it is navigable, but not without difficulty, as its channel is interrupted by shoals and islands.

ISÈRE, a department in the s.e. of France, is bounded on the n. and w. by the river Rhone, on the e. by the department of Savoie, and on the s. and s.e. by those of Drome and Hautes-Alpes. Area, 3,200 sq.m., of which nearly a half is in arable land, and a

fifth in wood. Pop. '81, 573,833. The surface is level in the n.w., but becomes mountainous as one proceeds s., where the scenery is very imposing. Mt. Olau, on the south-eastern border, is 12,664 ft. high. The chief rivers, besides the Rhone, are the Isère, from which the department derives its name, and its affluents the Drac and Romanche. The department of Isère is one of the richest of France in mineral productions. Mines of iron, lead, copper, and coal are worked, and gold and silver occur. The vine is carefully cultivated in the valleys; 5,324,000 gallons of wine are said to be produced annually. Arrondissements, Grenoble, La Tour du-Pin, St. Marcellin, and Vienne; capital, Grenoble.

ISERLOHN', an important manufacturing t. of Prussian Westphalia, is situated in a picturesque and mountainous district, on the Baar, a tributary of the Ruhr, 18 m. w. of Arnsberg. The industry of Iserlohn is chiefly directed to the manufacture of hardware of various kinds, especially of brass and bronze articles. Pop. '80, 18,611.

ISERNIA (anc. *Æsernia*, a city of the Samnites), a t. of Italy, in the province of Campobasso, is situated in a commanding position on the crest of a hill, 24 m. w. of Campobasso, and is surrounded by scenery of romantic beauty. The modern town consists chiefly of one long and narrow street, and is surrounded by walls. Among numerous other antiquities is a subterranean aqueduct, hewn in the solid rock, which still supplies the fountains and manufactories with water, and remains unimpaired throughout its entire course of one mile. Isernia was much injured by an earthquake in 1805, when some of its finest buildings were ruined. Woolens, paper, and earthenware are here manufactured. Pop. 8,584.

ISHIM, a river of Siberia, an affluent of the Obi (q.v.).

ISHMAEL (Heb. *Yishmael*, "God will hear"), the first-born of Abraham, by Hagar, the Egyptian handmaid of his wife Sarah. His character is found foretold before his birth by an angel, who met Hagar sitting by a well in the wilderness on the way to Shur, whither she had fled to avoid the harsh treatment of her mistress: "And he will be a wild [literally, "a wild ass-"] man; his hand against every man, and every man's hand against him; and he shall dwell in the presence of all his brethren" (Gen. xvi. 12). Expelled from his father's house, along with his mother, when he was about the age of 15, he went into the southern wilderness, where he grew up to manhood, and became famous as an archer. Scripture represents Ishmael in a not unfavorable light, and it was predicted that he should become a great nation. This "great nation" is commonly believed to be the Arabian; and there is no good reason for doubting that at least the *northern* Arabs—the wild Bedouins who roam over the great wastes between the peninsula of Sinai and the Persian gulf—may, to a certain degree, be the descendants of Ishmael. There is, however, not a shadow of reason, as all scholars now admit, for the notion that the founders of the great Joktanite and Cushite monarchies in the s. of Arabia were of Ishmaelitic origin; and the description given in Scripture of the character and habits of Ishmael and his descendants does not in the least apply to these monarchies. The Bedouins of northern and central Arabia, on the other hand, are full of Ishmaelitic traditions. Mohammed asserted his descent from Ishmael, and the Mohammedan doctors declare that Ishmael, and not Isaac, was offered up in sacrifice—transferring the scene of this act from Moriah in Palestine to Mt. Arafát near Mecca.

ISHPEMING, Mich. See page 883.

I'SIAC TABLE, a monument much esteemed and quoted by archæologists previous to the discovery of hieroglyphics, being a flat rectangular bronze-plate, inlaid with niello and silver, about 4 ft. 8 in. long, by 3 ft. in height. It was sold by a soldier of the constable de Bourbon to a locksmith, and bought of the same by cardinal Bembo in 1527, passed after his death to Modena, and finally to Turin, where it is now deposited. It consists of three rows of figures of Egyptian deities and emblems. Its object was supposed to have been votive, or even to have been the nativity of the emperor Trajan; but it is now recognized as a very late or spurious monument.—Winckelmann, Op. iii. 113, v. 450; Wilkinson, sir G., *Mann. and Cust.*

ISIDORE OF CHARAX, b. at Charax on the Tigris; was a geographer, living in the 1st c. A.D. He wrote a work describing the Romans, Greeks, and Parthians, extracts from which are found in Pliny, and fragments published in modern times give much information concerning Asiatic geography.

ISIDORE OF SEVILLE (ISIDORUS HISPALENSIS), one of the most distinguished ecclesiastics of the 6th century. He is particularly remarkable as among the earliest representatives of the church of Spain, and of that great movement in the western church by which the doctrinal and moral system of Christianity was brought into harmony with the habits and institutions of those various races and nationalities which, by successive immigrations and wars, were eventually erected into the Hispano-Gothic kingdom, which exercised so powerful an influence on what is called Latin Christianity. He was born about 560 or 570, at Carthagena, where his father, Severianus, was prefect. Two of his brothers, Fulgentius and Leander, were, like himself, bishops, the first of Carthagena, the second succeeding himself in the see of Seville. The episcopate of Isidore is rendered notable by the two half-ecclesiastical, half-civil councils of Toledo in 619 and in 633, which were held under his presidency, and the canons of which may almost be said to have formed the basis of the constitutional law of the Spanish

kingdoms, both for church and for state, down to the great constitutional changes of the 15th century. He also collected with the same object all the decrees of councils and other church laws anterior to his time. His death, which occurred in 636, forms one of the most remarkable scenes in early Christian history. When he became sensible of the approach of death, he summoned his flock to his bedside, exhorted them to mutual forbearance and charity, prayed their forgiveness for all his own shortcomings in his duty, and directed all his property to be distributed among the poor. His works, which are in the most various departments of knowledge—theological, ascetical, liturgical, scriptural, historical, philosophical, and even philological—were first published in 1580; but the most complete edition is that of Arevali, 7 vols. 4to (Rome, 1797–1803). We are indebted to Isidore for many fragments of Greek and Latin authors, among the number several of whom hardly any other remains have been preserved.

ISIDO'RIAN DECRE'TALS, also called FALSE DECRETALS, a spurious compilation of the 9th c., which, by a singular combination of circumstances, obtained currency in the western church, and continued for several centuries to enjoy unquestioned authority. Up to the 9th c., the only authentic collection of decretals, that of Dionysius Exiguus, commenced with the decrees of pope Siricius in the end of the 4th century. The so-called Isidorian decretals stretch back through the predecessors of Siricius up to Clement himself, and comprise no fewer than 59 decrees or epistles anterior to the time of Siricius. In a later part of the Isidorian collection, moreover, are interpolated nearly 40 similar documents, unknown till the time of that compilation. All these documents are presented not merely as authentic, but as the genuine productions of the particular popes to whom they are attributed. The subject-matter of these decretals is most diversified, comprising the authority and privileges of the pope, the whole system of the hierarchy, with the relations of its several orders to each other and to the common head. In all, there is a strong and systematic assumption of the papal supremacy; but it is at the same time more than doubtful whether the direct object of the author was the exaltation of the papal prerogative. It is much more likely that the object was to protect the rights of bishops against the arbitrary rule of the metropolitans. Dean Milman thinks it probable that the author believed that he "was not asserting for Rome any prerogative which Rome herself had not claimed" (*Latin Christianity*, ii. 378). Catholic historians, indeed, go further, and while they admit and denounce the clumsy fraud, contend that the easy and universal acceptance which the decretals met, furnishes the strongest presumption that the discipline which they have elaborated and methodized, was already in full possession, although without the formal and written law which the daring adventurer attempted to provide in the decretals of the early pontiffs.

It is curious that the author, the place, and the date of this singular forgery are still matter of uncertainty. It is certain that it did not come from Rome; and the most probable conjecture assigns its origin to Mentz, at some time between the years 840 and 847. It was introduced under the name of Isidore of Seville, as a part of the genuine collection known as his, and was believed to have been brought from Spain by Riculf, the archbishop of Mentz. It is hardly possible, in an age of discussion like ours, to doubt that, when the decretals first appeared, even the most superficial inquiry, or the slightest critical investigations of the historical sources, would have sufficed to detect the fraud. "It is impossible," says dean Milman, "to deny that at least by citing without reserve or hesitation, the Roman pontiffs gave their deliberate sanction to this great historic fraud;" and yet it is equally impossible to fix the limit beyond which, in an age so uncritical, literary or historical credulity might not be carried without provoking its susceptibility, or disturbing its peace.

From the first circulation of the false decretals down to the 15th c., no doubts were raised regarding them. Nicholas of Cusa and cardinal Turrecremata were the first to question their genuineness; but after the reformation, the question was fully opened. The centuriators of Magdeburg demonstrated their utterly apocryphal character. A reply was attempted by Father de la Torre; but the question may be said to have been finally settled by Blondel.—See Milman's *Latin Christianity*, ii. 370–80; Walther's *Kirchenrecht*, p. 155; Gfrörer's *Kirchengeschichte*.

I'SINGLASS. See GELATINE.

I'SIS, the name of an Egyptian deity, the sister and wife of Osiris, called by that people *Hes*, daughter of *Seb* or Chronos, and Nu or Rhea; according to other versions, of Hermes and Rhea, born on the 4th day of the Epagomenæ, or five days added to the Egyptian year of 360 days. After the murder of Osiris by Typhon, and the throwing of him in a coffin into the Tanitic mouth of the Nile on the 17th Athyr, Isis was informed of the deed by the Pans and Satyrs, and went into mourning at Coptos; and hearing from some children where the chest had been thrown, proceeded to seek for it in company with Anubis, and discovered it inclosed in a tamarisk column in the palace of Malcander, at Byblos; and sitting down at a fountain in grief, was discovered by the ambrosial scent of her hair, and invited to the court by the queen Astarte, to nurse her children. One of these she fed with her finger, and endeavored to render immortal by placing him in flames, while she herself, under the form of a swallow, flew round the column and bemoaned her fate. Having obtained the column Isis took out the chest of Osiris, wrapped it in linen, and lamented so deeply that the youngest of the queen's sons died

of fright. She then set forth with the chest and eldest son to Egypt, dried up the river Phædrus on her way, and killed with her glances the eldest son, named Maneros, who had spied her secret grief in the desert. Having deposited the chest in a secret place she proceeded to Buto to Horus; but Typhon discovered the chest, and divided the body into 28 or 26 portions, and scattered it over the country. These the goddess again sought, and found, except the phallus, which had been eaten by fish; and wherever she found any of the limbs, she set up a tablet, or sent an embalmed portion, deposited in a figure of the god, to the principal cities of Egypt, each of which subsequently claimed to be the true birthplace of Osiris. After the battle of Horus and Typhon, Isis liberated Typhon, and had her diadem torn off, and replaced by one in the shape of a cow. She was the mother of Haroris by Osiris before her birth, and of Harpocrates after the death of Osiris. She buried Osiris at Philæ. The monarch Rhampsinitus played at dice with her in Hades. Her soul was supposed to have passed into the star Sothis or Sirius. Her worship was universal throughout Egypt; she was particularly worshiped at Philæ and at Bubastis, where a special festival was celebrated to her; and her tears were supposed to cause the inundation of the Nile. Another festival was celebrated to her at the harvest.

In the monuments she is called the goddess-mother, the mistress of heaven, sister and wife of Osiris, and nurse of Horus, the mourner of her brother, the eye of the sun, and regent of the gods. In her terrestrial character, she wears upon her head the throne which represented her name; in her celestial, the disk and horns, or tall plumes. She is often seen suckling Horus; sometimes she has the head of a cow, indicating her identity with the cow Athor, of whom the sun was born. Occasionally she is identified with other female deities, such as Pasht. On her head she wears the vulture symbol of maternity. Her attributes were assumed by the queens of Egypt, and Cleopatra sat and gave responses in the character of the youthful Isis.

The worship of Isis was introduced into Rome by Sulla (86 B.C.) from Tithorea, and shared the fate of that of other Egyptian deities, being associated with that of Serapis, Anubis, and others, and the temples from time to time destroyed. It flourished under the Flavians and Hadrian. At this time Isis was represented with a sistrum or rattle, a bucket, and a dress with a fringed border, knotted at the chest. On the Alexandrian coins, Isis appears as *Pharia*, before the Pharos, holding a full sail. The festivals, seclusion, rules of chastity, attracted many followers, but the worship was not altogether considered reputable by the Romans. It was more extended and respected in Asia Minor and the provinces, but fell before Christianity (391 A.D.). Isis was worshiped as the giver of dreams, and in the twofold character of restorer of health and inflicter of diseases.

The myth of Isis, as given by Plutarch, appears to be a fusion of Egyptian and Phenician traditions, and the esoterical explanations offered by that writer and others show the high antiquity and unintelligibility of her name. She was thought to mean the cause, seat, or the earth, to be the same as the Egyptian Neith or Minerva, and Athor or Venus; to be the Greek Demeter or Ceres, Hecate, or even Io. Many monuments have been found of this goddess, and a temple at Pompeii, and a hymn in her honor at Antioch. The representations of her under the Roman empire are most numerous, Isis having, in the pantheistic spirit of the age, been compared with and figured as all the principal goddesses of the Pantheon.—Plutarch, *De Iside;* Herod. ii. c. 59; Ovid, *Met.* ix. 776; Bunsen, *Egypt's Place*, i. p. 413; Wilkinson, sir G., *Mann. and Cust.*, iii. 276, iv. 366; Birch, *Gall. Ant.* p. 31.

ISIS. See THAMES.

ISKANDEROON', or ALEXANDRETTA, a seaport of Asiatic Turkey, on the coast of Syria, is situated on a gulf of the same name, 60 m. w.n.w. of Aleppo, of which it is the port. Its harbor is the best on the Syrian coast; but the town itself, though much improved within late years, is still poor and miserable. Numerous vessels of large tonnage, and with cargoes the value of which is considerably upwards of a million sterling, annually enter and clear the port. Galls, silk, cotton, and fruits are exported; and the chief imports are rice, corn, salt, and goods of British manufacture. Pop. 1000.

ISKELIB, or ESKILUP, a t. of Asiatic Turkey, in the vilayet of Anatolia, near the Kizil-Irmak, about 260 m. e. of Scutari. There are several mosques and a ruinous castle on the top of a bold and naked limestone rock. In the neighborhood are sepulchral caverns, some of which are sculptured. Pop. estimated at 9,000.

ISLA, JOSÉ FRANCISCO DE, 1703–81; b. Spain; a Jesuit preacher and satirist, a man of acute wit and intense humor. He ridiculed a religious festival at Salamanca and a royal pageant at Pampeluna by an ironical eulogy so artfully disguised that at first it was regarded as an honest adulation, but upon its burlesque character becoming known, he was compelled to leave the city. His most important satire was *The Life of the Popular Preacher, Fray Gerundio*, in whose adventures he held up to public contempt the ignorance and audacity of the itinerant friars of the time. It was condemned in 1760 by the inquisition on the clamor of the lower clergy, but his popularity saved him from personal persecution. His poem *Cicero* is rich and pungent in sarcasm. A copy of it was presented to the Boston athenæum in 1844, with some of his autograph letters.

IS'LA DE LEON', a narrow island in the Atlantic, s. of Spain, separated from the mainland by the strait of Santi Petri. It is 10 m. long; pop. 10,000. On it are the cities of Cadiz and Isla de Leon. It is fortified, has several convents, 2 hospitals, and an observatory.

IS'LA DE NÉGROS, one of the group of islands in the Malay archipelago, known as the Philippines. It is 140 m. long, and averages 25 m. in width, its total area being 3,827 sq.m., with a pop. of 255,827, in scattered Spanish settlements, mostly on the n. shore.

ISLA DE PI'NOS, an almost circular island, of 800 sq.m. and 900 inhabitants, is the largest of the numerous satellites of Cuba, lying off the s. coast of the queen of the Antilles, pretty nearly on the meridian of the capital, Havana. It is celebrated for its excellent climate, exuberant fertility, rich mines, and valuable timber.

ISLÂM, or Eslâm (Arab.), the proper name of the Mohammedan religion; designating complete and entire submission of body and soul to God, his will and his service, as well as to all those articles of faith, commands, and ordinances revealed to and ordained by Mohammed the prophet (see Mohammedanism). Islam, it is held, was once the religion of all men; but whether wickedness and idolatry came into the world after the murder of Abel, or at the time of Noah, or only after Amru Ibn Lohai, one of the first and greatest idolaters of Arabia, are moot-points among Moslim (a word derived from *Islam*) theologians. Every child, it is believed, is born in Islam, or the true faith, and would continue in it till the end were it not for the wickedness of its parents, "who misguide it early, and lead it astray to Magism (see Guebres), Judaism, or Christianity." See Mohammed Korân.

ISLAMABAD'. See Chittagong.

ISLAND (Ang.-Sax. *igland*, "properly, *eye-land*, a spot of land surrounded by water, as the eye in the face"—Wedgewood; Ice, *ey*, Dan. *öe*, meaning isle, and akin to eye; the *s* in island crept in through the influence of Fr. *isle*, derived from Lat. *insula*), in geography, land surrounded with water. New Holland is sometimes regarded as a continent, and sometimes as an island; so that the distinction of the terms is somewhat vague; even the great eastern and western continents are surrounded with water. In the ocean between New Holland and Asia, and to the eastward, islands are more numerous than anywhere else in the world. There, also, the largest islands are found. Excluding New Holland, the largest islands in the world are Borneo and Greenland; after these, New Guinea, Madagascar, Sumatra, and Great Britain. Islands are often in groups, and when the number is great, the assemblage is called an archipelago. Some islands have the appearance of intimate geological connection with the continents near which they are situated, and some of such connection with each other that they seem as if they were the remaining parts of a former continent; others, generally of a more circular form, have their geological character more complete in itself. In the South seas there are two very distinct classes of islands, the one mountainous, and often with active volcanoes; the other low and flat, formed of coral. See Coral Islands.

ISLAND, a n.w. co. of Washington territory, comprising the two islands Whidby and Camano, and bordering on the strait of Juan de Fuco; pop. '80, 1,087. Whidby is 40 m. long, but quite narrow, and noted for its fertility and salubrity. The staple products are grass, barley, wool, and potatoes. The county is partly covered with forests. Capital, Coupeville.

ISLAND POND, a village of Essex co., Vt., on a small lake of the same name; pop. 300. It is on the Grand Trunk railroad, 149 m. from Portland. It has 3 churches, a newspaper, flouring and lumber mills, and a custom-house. It is on the boundary between the United States and Canada.

ISLANDS of the **BLESSED** were, according to a very old Greek myth, certain happy isles situated towards the edge of the western ocean, where the favorites of the gods, rescued from death, dwelt in joy, and possessed everything in abundance that could contribute to it.

ISLAY, an island on the w. coast of Scotland, belonging to the group of the Inner Hebrides, and to the co. of Argyle, lies w. of the peninsula of Kintyre, from which it is distant about 15 m., and s.w. of the island of Jura, from which it is separated by a strait called the sound of Islay. Greatest length, 24 m.; greatest breadth, 17 m.; area, about 220 sq.m.; pop. '81, 7,559. In the n. the island is hilly, and along the eastern shore runs a ridge rising from 800 to upwards of 1500 ft. in height. The central and western districts are undulating or flat. Agriculture has of late years been greatly improved; the number of acres under cultivation is about 22,000, and abundant crops, both white and green, are produced. There are eight distilleries on the island, which produce about 400,000 gallons of whisky annually. Chief exports: black-cattle, sheep, and whisky. Lead and copper ores have been worked in mines in the interior, but not shipped to any considerable extent.

ISLE LA MOTTE, an island 6 m. long in lake Champlain, forming the township of Isle la Motte, Grand Island co., Vt. It is 30 m. n. of Burlington. Pop. '80, 504.

ISLE OF DOGS. See Dogs, Isle of, *ante*.

ISLE OF FRANCE. See MAURITIUS, *ante.*

ISLE OF MAN. See MAN, ISLE OF, *ante.*

ISLE OF WIGHT, ENGLAND. See WIGHT, ISLE OF, *ante.*

ISLE ROYALE, a co. of Michigan, including the island of the same name, together with several smaller islands, in lake Superior, n.w. of Keweenaw point. Isle Royale island, 40 m. long, is extensively covered with trees, and abounds in copper and other minerals. The county is remarkable for the interesting discoveries made of the relics of a prehistoric people to whom the use of copper was known. Some of their excavations, propped up with huge wooden supports, now dropping to decay, show a wonderful knowledge of the art of mining. Their tools were of stone and copper, and many of them are found on the island. Siskwit bay is a small settlement of miners employed in the copper-mines of a New York company. Capital, Minong. Pop. '80, 55.

ISLES, LORDS OF THE. The lords of the Isles are famous in poetry and romance, but no proper historical account of them has yet been written, and it is difficult to discriminate between truth and fable in the various notices which have been preserved. The western islands of Scotland, or Hebrides, as they were afterwards called, originally a portion of the domains of the Scots and Picts, were afterwards subdued by the Norwegians. When Scotland became consolidated into one monarchy, its kings endeavored to wrest the islands from the Norsemen; and during the contest which ensued, the various chiefs sometimes professed allegiance to the king of Scotland, and sometimes to the king of Norway, or their own more immediate superior, who ruled in Man. The Scottish supremacy was finally established by the victory of Largs, in the reign of Alexander III., and the final cession of the islands by Magnus, son of Haco, king of Norway, made in the year 1266. By that treaty, all the islands of the Scottish seas, except those of Orkney and Zetland, were surrendered to Scotland. Man was conquered by the English during the wars of the succession, but the other islands remained subject to the Scottish sovereigns. The first name which generally appears in the lists of the lords of the Isles, as distinct from the kings of Man, is Somerled; and the great chiefs who afterwards held the islands and portions of the mainland near them, claimed descent from this powerful lord. He appears prominently in Scottish history in the middle of the 12th c., during the reigns of David I., and his grandson and successor, Malcolm IV. How he acquired his great authority is not precisely known. Even the race to which he belonged is uncertain; probably, like most of his subjects, he was of mixed descent, Norwegian and Celtic. His sister was married to Malcolm Mac-Heth, the head of the great Celtic family of Murray, who has been confounded by most Scottish writers with the impostor Wimund, and whose true history has been explained by Mr. E. W. Robertson in his *Scotland under her Early Kings.* In the year 1164 Somerled landed on the coast of Renfrew, at the head of his subjects of Argyle and the Isles, and was defeated and slain. His dominions seem to have been divided among his three sons—Dugal, Angus, and Reginald or Ronald. The descendants of Dugal became lords of Argyle and Lorne; and those of Reginald, lords of the Isles. Reginald is said to have been succeeded by Donald, and Donald by Angus Mor, who was the father of Angus Og. We know from Barbour that Angus of the Isles, "lord and leader of Kintyre," gave his fealty to Bruce when most hardly pressed at the beginning of his reign, receiving him into his castle of Dunaverty, and that he afterwards fought under the great king at Bannockburn. This chief is the hero of *The Lord of the Isles*, but his name, as Scott tells us, "has been *euphoniæ gratiâ*, exchanged for that of Ronald." John of the Isles, son of Angus, married, first, his cousin, Amy of the Isles, and secondly, Margaret, daughter of king Robert II.; and among his descendants by these marriages are said to be the McDonalds of Sleat, Keppoch, Glengarry, and Clanranald. During the troubled and disastrous reign of David II., John of the Isles was able to maintain himself in a state of practical independence of the Scottish crown. He was at last, however, obliged to submit. He met David at Inverness in 1369, and gave hostages for his fidelity. His successor was Donald, his eldest son by Margaret of Scotland, and the most powerful of all the Island lords. He set the kings of Scotland at defiance, and made treaties as an independent sovereign with the kings of England. He married Margaret, daughter of Euphemia, countess of Ross. Margaret's brother, Alexander, earl of Ross, by his marriage with the daughter of the regent Albany, left an only child, who became a nun. Donald claimed the earldom in his wife's right; and when this claim was refused by the regent, he prepared to maintain it by force, Taking possession of Ross, he marched at the head of a large army from Inverness, through Murray and Strathbogie, entered the Garioch, and threatened to destroy the burgh of Aberdeen. At Harlaw (q.v.), near Inverury, he was encountered on St. James's eve, 1411, by a Lowland army much inferior in number, commanded by Alexander Stewart, earl of Mar. The action was fiercely contested, and, though not decisive in itself, the lord of the Isles retreated, and all the advantages of the combat remained with Mar. This engagement, famous in history and song, probably saved the Lowlands of Scotland from Celtic supremacy. Donald was soon afterwards obliged to surrender the earldom of Ross, and to submit to the regent. He was succeeded by his son, Alexander. This lord, like other great Scottish nobles, was seized and imprisoned by James I., who was determined to allow no rule in Scotland except his own. When restored to liberty, he again broke out into

insurrection, but his army was routed; and in order to obtain pardon, he appeared at the altar of the church of Holyrood, and kneeling half-clothed before the king, presented his sword, and implored forgiveness. After a short imprisonment he was again pardoned. Upon his mother's death, he assumed the style of earl of Ross, and seems to have been in possession of the earldom. He was succeeded as earl of Ross and lord of the Isles by John, his eldest son. John, like his predecessors, acted as if he were an independent sovereign rather than a vassal of the king of Scots. He entered into a confederacy with the earls of Douglas and Crawford, the one, the most powerful nobleman in the s., the other, in the center of Scotland; and had they acted together with promptness and determination, the house of Stewart might have ceased to reign. In Oct., 1461, at his castle of Artornish, on the coast of Argyle, he granted a commission to his kinsman Ronald, and Duncan, archdeacon of the Isles, to enter into a treaty with Edward IV. of England. By that treaty, which was concluded in the following year, he agreed to become liegeman to Edward, and, to assist him in conquering Scotland. He was attainted more than once, and finally was obliged to resign the earldom of Ross, which was annexed to the crown. This took place July 10, 1476, and John was at the same time created lord of the Isles. He is said to have died in 1498. After his decease, the title of lord of the Isles was assumed by Donald the bastard, son of Angus of the Isles, an illegitimate son of John, lord of the Isles; and several chiefs were attainted in 1503 and 1505 for supporting his claims. In July, 1545, another Donald, styling himself earl of Ross and lord of the Isles, presiding in a sort of Highland parliament, granted commission to the bishop elect of the Isles and another person to enter into a treaty with the earl of Lennox, then acting for Henry VIII. of England. This document is given by Mr. Tytler, the historian of Scotland, who remarks that "it is a diplomatic curiosity, not one of the Highland chieftains, eighteen in number, being able to write his name." In a paper addressed by the Highland commissioners to the privy council of England, they speak of their constituents as "the auld enemies to the realm of Scotland," the very name by which the Scottish parliament was wont to speak of the English. Various persons, claiming to be descendants of John, earl of Ross, assumed the style of lord of the Isles; but the title does not appear to have been recognized after his decease, except as annexed to the crown. The eldest son of the Scottish sovereign has generally used the style of lord of the Isles, along with his other titles.

ISLES OF SHOALS, a cluster of 8 barren rocky islands in the Atlantic ocean off the coast of New Hampshire, 10 m. s.e. of Portsmouth. The two largest are Appledore, containing 400 acres, and Star, 150. On these are large hotels for visitors, who resort there for the sea air, boating, and fishing. A steamer runs daily from Portsmouth. On White island is a revolving light 87 ft. above the sea. These islands are inhabited by a few fishermen.

I'SLINGTON, a suburb of London, but so closely connected with it as to form part of it, is situated 2 m. n. of St. Paul's. Pop. in 1851, 95,329; in 1861, 155,341; in 1881, 282,628; it is remarkable for the number of its religious, educational, and benevolent institutions.

IS'LIP, a village of Suffolk co., Long island, N. Y., 44 m. e. of Brooklyn, is on Great South bay, and on the South Side railroad. It is a summer resort. It has 3 churches, 2 academies, several mills, and a shipyard. Pop. 1500. The total population of the township, containing the large villages of Bay Shore and Sayville, is 6,450.

ISMAEELIAH, or Ismaëlians. See Ismailis, *ante.*

ISMAIL, a t. and river port in the Russian government of Bessarabia, on the n. bank of the Kilia branch of the Danube, about 40 m. from the mouth of that river. It was taken and destroyed by Suvorof in Dec., 1790; came into possession of Russia in 1812; was assigned to Moldavia by the treaty of Paris, 1856; and was transferred to Russia again by the Berlin Congress of 1878. It carries on an important trade in corn, as well as a considerable general trade. Pop. above 20,000.

ISMAILIA. See Suez Canal.

ISMAILIS, is the name of a very advanced "free-thinking" Mohammedan sect, of the Shiite branch of Islam (see Shiites), which sprang up in the 9th c. A.D., and spread throughout Mohammedanism. Recognizing Ali alone as the rightful successor of the prophet, they held Abu Bekr, Omar, Othman, Moawia, to be usurpers, and counted their imams, or representative prophets, from Ali only. The seventh imam was one Ismaïl, who lived about 150 Hedjrah (772 A.D.), the son of Jafar Assadik, or rather of his son, Mohammed. He was supposed to be the righteous prophet, the only orthodox, spiritual head. The notion of the imam, in general, is that of an ever-living, though, at times, hidden, supreme guide of the people, who, after a time, is restored to humanity, or at least to the believing part of it. A prayer, preserved to us by Ibn Chaldun, will best show the peculiar notion connected with this belief, to which no small part of Islam confessed. Every evening, a certain number of imamiehs prayed: "O imam, appear unto us! Humanity is awaiting thee; for righteousness and truth have perished, and the world is gone down in darkness and violence. Appear unto us, that we may, through thee, return unto God's mercy." It was thought, in fact, that Ali himself had reappeared in every imam, and that he would descend again, some day, "from the

clouds," to unite all believers, and to restore the pure faith. The real importance of this sect, which had existed unobserved for some time, dates from Abdallah Ibn Maimun, whose father had been executed for professing materialistic doctrines, and trying to turn people away from the doctrines of Islam. Abdallah seems to have practically carried out his father's notions, but more cautiously. He is described by the Arabic writers as an utterly irreligious and unscrupulous materialist or "Zendik." The Messiah, whom he preached, stood higher than Mohammed himself, and though he did not exactly reject the Koran *en bloc*, he yet contrived to allegorize and symbolize away nearly all its narratives and precepts. But the systematic way in which Abdallah went to work, in trying to undermine, and eventually to abrogate, all Islam, and, as his biographers have it, to replace it by materialism, atheism, and immorality, is very remarkable indeed.

He established missionary schools; and the instructions given to the young missionaries were artfully designed to win over not merely all the different Mohammedan sects, both Sunnites and Shiites, but also Jews and Christians. The missionary's (daï's) first task was to win for himself the perfect confidence of the proselyte to be, by the affectation of great orthodoxy, and by a vast display of pious learning, chiefly Koranic. The disciple is by degrees to be cross-examined on difficult passages, on their "spiritual meaning," and on some points touched upon belonging to the physical sciences. Only matters of acknowledged obscurity and uncertainty are chosen as subjects of discourse, matters the real understanding of which belongs exclusively to the "aristocracy of learning." Generally, the youth is so deeply impressed with the erudition displayed, the expectations raised, the mystery, and the rest, that he will follow gladly to the end. But, at times, the missionary meets with a less docile subject, a man who may be accustomed to discussions on these topics, who may have pondered over these things himself: the daï shall appear to accommodate himself to such a one's views, applaud all he says, and thus ingratiate himself with him; all the while taking care to show himself well informed on those points which may be in favor with his disciple, and that mode of faith which he professes. All this is to be done very carefully, lest the other might "suspect and betray." The ordinary individual, on the other hand, is, after the first preliminaries, to be told that religion is a secret science, that most people know nothing of it, or utterly misunderstand it, that if the Moslems knew what degree of science God has imparted to the imams, by quite a special favor, there would no longer be any dissensions among them. The disciple, whose curiosity has by that time been fully roused, is then to be instructed in a few allegorical interpretations of both the practice and theory of the Koran; and when he is convinced of the desirability to know more, and everything that the master knows, the latter is merely to point out to him that all this knowledge belonged of right to all Islam, but that the wickedness and perverseness of those who followed the wrong successor, has caused all dissension and infidelity in the community of the believers. It is the imams who are the dispensers of the right interpretation, not people's own reason and judgment.

For the religion of Mohammed, they were to tell the disciple at this stage, was not a thing easy to comprehend. It did not mean to flatter the senses, or to dazzle by outward signs. It was on the contrary, a difficult, the most difficult matter. Only angels of the first rank, or a prophet specially chosen, or a faithful servant whose heart God had searched and found true, were worthy of bearing this most precious of all burdens. By these and other speeches, the ordinary disciple is soon brought to revere and to admire the daï beyond all other men around him, upon whom he henceforth only looks as inferior beings and infidels, and his desire of knowing more or all becomes passionate. But hitherto the procedure has been discreet. All that was desired in this first preliminary stage, was to unsettle the man's faith. The preparatory questions put to the neophyte were so contrived as completely to puzzle and bewilder him (e.g.—Why did God take seven days to the creation of the world? Why are there 12 wells and 12 months? What is the figure of your soul?); and if the missionaries themselves proceeded to answer them, it was by allegorizing interpretations of the Koran, the Sunnah, and the laws. But they used the common artifice of stopping short just in the middle of an explanation, for they said, when pressed to continue: "These things are not lightly to be communicated; God always requires a pledge first. If you will swear into my hands, with the most solemn and inviolable oaths, never to divulge our secret, never to give any assistance to our adversaries, never to lay a trap for us, and never to speak to us unless for the purpose of telling us the truth, then I will tell you more." When, if the neophyte has taken the requisite oath—and it is only at the very commencement of the initiation that oaths are of any moment to the Ismaili—he is further asked to contribute a certain sum of money, as a pledge for his sincerity. Should the convert, however, exhibit the slightest degree of reluctance either in swearing or in paying, he is instantly given up by the daï—"a prey to the never-to-be-solved doubts of his heart."

Thus far the *first* preliminary degree. In the *second*, the missionary begins to initiate the neophyte's mind into the doctrines of the Imamat—i.e., to prove to him, by arguments and proofs best adapted to his mind, how the understanding of God's religion can only be accomplished by following the revelations given to and communicated by certain special delegates; whose names are communicated to him in the *third* degree. There are, he is told, seven such imams, as there are (according to the Koran, Sur. 65, 12)

seven planets, seven heavens, seven earths—viz., Ali, Hassan, Husein, Ali Zein Alabidin, Mohammed Albakir, Jafar Assadik, Ismaïl. In the *fourth* degree, the proselyte learns that the number of the prophets, whose task it was to abrogate at different periods the ancient forms of faith, and to substitute new laws, is also seven, like that of the imams; that each of them had a "companion," to whom he confided his whole dispensation and its sacred meanings, and that the latter communicated the same in a secret manner, and by oral tradition, to another man after him, who again handed it down to a successor; until, after a string of seven such "successors," or *samet* (silent ones), in contradistinction to the prophet (*natik*) or speaking, teaching one, a new imam is born. The traditional chain has thus never been broken. After seven times seven such successions of prophets and their "silent" successors—during which seven religions were successively abrogated—there appeared the last and crowning prophet, who abrogated all the religions that were before him, and who is the "chief of the last century"—the last natik. These seven are: (1) Adam, with his companion ("Soos") Seth; (2) Noah, with Sem; (3) Abraham, with Ismael; (4) Moses, with Aaron. The last of the seven "silent ones" that followed him was John, the son of Zachariah. The 5th is Jesus, the son of Mary, with Simon "Kepha"—by them supposed to be Arabic = purity. The 6th of the "speaking prophets" is Mohammed, the son of Abdallah; with him was Ali, the son of Abu Talib; and he was followed by six other "silent ones," who transmitted to each other the secret mysteries of his religion; the last of whom was Ismaïl, the son of Jafar Sadik. The 7th of the prophets is the "chief" or "master of the century." In him culminate and are completed all those sciences which are called "the sciences of the primeval ones." It is he who has first fully opened up the inner and mystic meaning of the words of faith; from him, to the exclusion of every one else, their explanation is to be received. He, and he alone, is to be followed, obeyed, and trusted in all things. By utterly submitting to his words and teachings alone, man is in the right path. All the prophets and all their teachings without exception before him are abrogated through him and by him.

In the *fifth* degree, the Koran and its precepts are made the subjects of discussion. It is proved to the convert how utterly wrong and foolish it is to interpret the words in their usual sense. Here, again, great subtlety is brought to bear upon the disciple. If he be a Persian, he is told that the Arabs are the oppressors of his country, upon which, with other humiliations, they have also imposed the slavish worship of this book. If he be an Arab, his mind is wrought up against the Persians, who, he is told, have appropriated to themselves the pontificate and the sovereignty that by rights belonged to the Arabs. He is then instructed in a multitude of mystical relations of things depending upon numbers.

The practical religious instruction begins with the *sixth* degree, into which the neophyte only enters when fully prepared in his mind to deny all positive religion, and when he has given the most undoubted pledges of his discretion and silence. Every Koranic precept is now allegorized. Prayer, tithes, pilgrimage, legal purity, and other religious observances, are cautiously and systematically interpreted to mean certain spiritual things only. These precepts, the missionary explains, have only been established "as enigmas by the philosophical prophets and imams, who saw in them the only means of keeping the common people in dependence, of exciting them to actions useful to society, of preventing them from hurting each other, and to commit gross crimes." But by slow degrees, the philosophers, Plato, Aristotle, Pythagoras, and their systems are introduced to the neophyte. They and their systems are contrasted with the prophet and the imams, and their dicta. The result is represented as by no means flattering to the latter. He is distinctly shown the absurdity of a blind belief in so-called historical traditions; it is made clear to him how hearsays and legends differ from reason and the full and free action of the logical faculties: in this way the open contempt with which the imams themselves are then spoken of, no longer shocks the disciple to any very great extent.

The *seventh* degree paves the way for the negation of God's unity, which is fully carried out in the *eighth*. Here the Demiurgos, i.e., a second god, but little inferior to the Supreme Being, is the real creator of all things. The first cause, or the "pre-existing," has neither hands nor attributes; no one is to talk of him, or to render him any worship. Much as this part of the doctrine has given cause to discussions within the bosom of the Ismailis themselves, it is yet scarcely doubtful that it is the notion of the Demiurgos that has crept in here. Hamza himself speaks of this "pre-existence" as the Word, or *Logos* (q.v.), although nothing can be more obscure than the manner in which this most abstruse dogma is either explained or denied by the different doctors. The Koran and the "word of God" are then taken in hand, and explained to the proselyte in a fashion very different from the one he had been accustomed to before. The resurrection, the end of the world, the supreme judgment, the distribution of rewards and punishments, are treated as allegorical or mystical symbols of the revolutions of the stars and the universe, which follow each other periodically, and of the destruction and reproduction of all things terrestrial, such as physical science and philosophy teach. The *ninth* and concluding degree of initiation frees the proselyte from all and every restraint with regard to his belief. He may, and some do, adopt the system of Manes (see LARES), of the Magi (q.v.), of Aristotle or Plato, or he may proceed eclectically with

them all. As to the notions previously instilled into his mind with regard to the prophets or the imams, he is now led to look upon all those "inspired" people as without exception inferior to Mohammed ben Ismaïl, the chief and doctor of the last period. The disciple learns, at this stage, that no miracle has ever been performed by any one of them; that the prophet is merely a man distinguished by his purity and the perfection of his intelligence, and that this purity of his intelligence is precisely what is called "prophecy." God throws into the prophet's mind what pleases him, and that is what is understood by "Word of God." The prophet clothes this Word afterwards with flesh and bones, and communicates it to the creatures. He establishes by this means the systems of religious institutions which appear to him the most advantageous for the ruling of men; but these institutions and behests are but temporary, and intended for the preservation of order and worldly interests. No man who *knows* need practice any single one of them; to him, his *knowledge* suffices.

As to Mohammed, the son of Ismaïl, of whom the proselyte is told at first that he will reappear in this world—he is afterwards represented to him as merely destined to reappear in his doctrine, by means of the propagation of his pure philosophy by the mouth of his disciples and apostles. As to the Arabs themselves, the missionaries teach that God abhors them, on account of their having killed Husein, the son of Ali, and that he has therefore taken from the caliphs the Imamat, as he took from the Israelites the prophetical succession, when they had killed their prophets.

Thus the creed of the Ismailis had been gradually built up. Many changes were introduced into it at different times, and among them this very important one: that the person of Mohammed, the son of Ismaïl, itself was changed for another, a descendant of Abdallah, the son of Maimun Kaddah.

The two principal writers on this subject are Makrizi and Nowaïri; to the latter of whom the greater part of the foregoing information is due. He has preserved for us at length the very curious oath imposed upon the proselytes at the beginning of the initiation; and also certain instructions reserved for the missionary himself, which simply teach him to "be all things to all men." The following is a characteristic sample: "Then, again, there will be those to whom you must preach the belief in a living Imam. Say Mohammed ben Ismaïl is alive at this moment. Be very gentle and very modest with them; pretend to despise gold and silver; make them recite 50 prayers a day; recommend them to abstain from lying and other vices, also from wine. These people are of the utmost use to us. Leave them in their special creed, only just telling them some of the mysteries of the number Seven; but break their spirit by the surcharge of prayer. These will be our best proofs against any assertions of an advanced disciple, if he should betray us. Furthermore, these people, when properly managed, are sure to leave you at their death all their money, as they would, during their lifetime, give you everything they possessed without a murmur. The more advanced you may at once inform of the abrogation of Mohammedanism by our Imam—of the worthlessness of the Koran and its laws in their literal sense. To the still higher disciples you may confide the entirely spiritual nature of the Imam's 'life' in such a manner that their belief in the dogma of the resurrection is practically destroyed by it. From this stage you will conduct some to the renunciation of the belief in the existence of those heavenly beings, the 'angels,' and the creation of Adam as the first man on earth, while there were many before him. Having arrived at this point, you will find it marvelously easy to destroy the dogma of the existence of God and the mission of angels to the prophets, and to substitute for all this our own truth—i.e., the eternity of the universe. The last step is the abolition of both Mohammed ben Ismaïl and Ismaïl, who are only the 'gates' to knowledge."

So far the doctrines of the Ismailis, who, doubtless, aimed—apart from an original desire of purifying and allegorizing Mohammedanism, and elevating it to a philosophical system—at political power. How far one of their principal branches, the KARMATHIANS, succeeded in this, will be found under that heading. See Makrizi, Nowaïri, Silvestre de Sacy, *Religion des Druses*, etc.

ISMAIL' PASHA', or ISMAIL I., Viceroy and Khedive of Egypt; b. Cairo, Egypt, 1830; is the second son of Ibrahim Pasha, and grandson of Mehemet Ali. Educated at Paris, on his return to Egypt he was appointed by his uncle Said Pasha to the government of the country during his uncle's absence in Europe, and in 1862 placed in command of the army. On the death of Said Pasha in 1863 he succeeded as the fifth viceroy of Egypt. During the American war of the rebellion he acquired vast wealth by the production of cotton. Regarding the Suez canal of count de Lesseps as conducing to the power and resources of Egypt, he actively encouraged the enterprise. In 1866 he secured from the sultan the hereditary succession in his line, and in 1867 had conferred upon him the title of khedive. Not satisfied with these privileges he demanded more, threatening to withdraw the troops he had sent against the Cretan insurgents and to seize Crete if his demands were refused. By the advice of foreign powers he recalled his demand. But in 1868–69, by extending his rule over the Upper and White Nile, by making foreign loans for the increase of his army and navy, by proposing the neutralization of the Suez canal and inviting foreign rulers to be present at its opening, he made himself almost an independent sovereign. The sultan commanded him to

reduce his army, recall his orders for iron-clads and breech-loaders, and the contraction of foreign loans, threatening him with deposition if he refused. Not receiving expected aid from Russia and other powers, he submitted. Afterwards he received new prerogatives, giving him control of his army, and liberty to make loans and commercial treaties. In 1874 he obtained a victory over the sultan of Darfur, central Africa. By public roads, agriculture, and other methods, he endeavored to civilize the surrounding rude tribes, and introduced many and various public improvements. But in 1879 the governments of France and England, in view of the wretched financial condition of Egypt and the dissatisfaction of the people with the administration, determined to interfere in behalf of good government, and united in demanding of the Porte that the khedive should commit the portfolios of finance and public works to English and French ministers. But the khedive resented any interference of the western powers with Egyptian affairs. The sultan offered to depose Ismail Pasha, and to appoint Halim Pasha, Ismail's uncle, as his successor; but the powers advised the khedive to abdicate, promising to support his son Tevfik. The sultan acquiesced in the course recommended, and, June 26, he signed the firman deposing the khedive in favor of his son, prince Mohammed Tevfik. Ismail at once complied with the demand, and his son was proclaimed khedive as Tevfik I. Ismail received an annual allowance of £50,000, each of his sons Hassan and Hussein £20,000; and his mother £30,000. Ismail Pasha left Egypt June 30, for Naples.

ISMUD', Ismid, or Izmid. See Nicomedia.

ISNARD, Maximin, 1751–1830; b. France. In 1791 he was a member of the national assembly, in which he distinguished himself for his boldness and eloquence. He was re-elected in 1792. He joined the Girondists, and was arrested in June, 1793, but escaped, concealing himself with a friend until the fall of Robespierre. He appeared again in the assembly, and afterwards was a member of the council of 500. After this he lived in retirement in his native city, engaged in literary and philosophical pursuits.

ISNIK', or Izneck. See Nicæa.

ISOBAROMET'RIC LINES (Gr. *isos*, equal) are lines connecting together on a map those places which exhibit the same mean difference between the monthly extremes of the barometer. These oscillations are greater in some countries, as Hindustan and Newfoundland, than in others, as western Europe and the Antilles.

ISOCH'RONISM (Gr. *isos*, equal, *chronos*, time). A pendulum is isochronous when its vibrations are performed in equal times, whether these vibrations be large or small; but it can only possess this property by being constrained to move in a cycloidal arc. See Cycloid. This is managed by causing the string to wrap and unwrap itself round two equal cycloidal cheeks, the diameter of whose generating circle is equal to half the length of the pendulum, Isochronism is closely approximated in practice by causing the pendulum to describe a very small circular arc.

ISOC'RATES, a celebrated Grecian orator, was b. at Athens, 436 B.C. He had a weak voice, and much natural timidity, which shut him out from a political career; but he taught rhetoric, and wrote orations for others, for which he received large sums; and though he did not mingle in the strife of parties, he was earnestly interested in the cause of his country's independence and honor. The fatal battle of Chæroneia broke his heart: he refused to taste food, and died after an abstinence of several days, 338 B.C., in the 98th year of his age. Isocrates was a friend of Plato. His orations, of which upwards of 20 are extant, are characterized by extreme carefulness and elegance of style, but are not to be compared with those of Demosthenes in fervor, or with those of Lysias in natural beauty and simplicity. The best modern editions are those of Lange (Halle, 1803), Ad. Coraes (Paris, 1807), G. S. Dobson (Lond. 1828), and Baiter and Sauppe (Zürich, 1839).

ISODYNAM'IC, Isocli'nic, and Isogon'ic LINES (Gr. *isos*, equal, *dynamis*, force, *klino*, to bend, *gonia*, an angle), or lines of equal force, equal inclination, and equal declination, are three systems of lines, which being laid down on maps, represent the magnetism of the globe as exhibited at the earth's surface in three classes of phenomena, the varying intensity of the force, the varying dip or inclination of the needle, and its varying declination from the true meridian. See Magnetism.

I'SOLA BELLA. See Borromean Islands.

ISOLA GROSSA, or Lunga (Great or Long island), one of the many islands which lie off the western coast of Dalmatia, in the Adriatic sea, extends between 43° 51′ and 44° 11′ n. lat. Greatest length, 27 m.; greatest breadth, 3 m.; pop. 12,000.

ISOLA MA'DRÉ. See Borromean Islands.

ISOM'ERISM (from the Greek word *isomĕrēs*, composed of equal parts), a term applied to those organic compounds which are identical in their ultimate or percentage composition, but present differences in their chemical properties. Isomeric compounds, or *isomerides*, are divisible into metameric compounds, or *metamerides*, and polymeric compounds, or *polymerides*.

In all metameric compounds, the equivalent number is the same, while in all polymeric compoun ls the equivalent numbers are simple multiples of the equivalent of the

lowest number of the group. As an illustration of metamerides, propionic acid, ($HO,C_6H_5O_3$), acetate of methyl ($C_2H_3O,C_4H_3O_3$), and formic ether (C_4H_5O,C_2HO_3) may be taken. Their rational formulæ, which express their probable constitution, are perfectly distinct, yet it will be at once seen that they all have the same empirical formula ($C_6H_6O_4$), and consequently the same percentage composition, and the same equivalent number, viz. 74.

As an illustration of polymerides, the hydrocarbons homologous with olefiant gas may be taken Olefiant gas is represented by the formula C_4H_4, propylene by C_6H_6, butylene by C_8H_8, amylene by $C_{10}H_{10}$. These substances have the same percentage composition, but different equivalent numbers, all the formulæ being multiples of the more simple formula, C_2H_2, which represents the composition of an alcohol-radical, methylene, which has not yet been isolated.

The carbo-hydrates, which are represented by the general formula $C_xH_nO_n$, present well-marked examples of isomerism. Thus, cellulose ($C_{12}H_{10}O_{10}$), starch ($C_{12}H_{10}O_{10}$), and gum ($C_{12}H_{10}O_{10}$) are metameric; while grape-sugar ($C_{12}H_{12}O_{12}$) possesses the same percentage composition, but twice as high an equivalent number, as hydrated lactic acid ($C_6H_6O_6$), and the same percentage composition, but three times as high an equivalent number, as hydrated acetic acid ($C_4H_4O_4$); hence the three last-named substances are polymeric.

ISOMERISM (*ante*). Isomeric bodies may be considered as naturally divided into physical isomers and chemical isomers. The physical are more strictly or perfectly isomeric than the chemical, and on account of their similar molecular or radical composition when they are subjected to the action of different forces or reagents exhibit the same behavior. Thus there are several hydrocarbons known as terpenes, having the composition $C_{10}H_{16}$, as the oils of lemon, bergamot, and turpentine, which show the same reactions under the influence of chemical agents, except their difference of odor and action on polarized light. Chemical isomers merely, do not carry their isomerism so far, for although they may have the same proportion of elements, and also the same molecular weight, they do not exhibit the same behavior under reagents. Thus, the molecular formula $C_3H_6O_2$ represents three different bodies which decompose differently when acted upon by caustic alkalies, proprionic acid, $C_3H_5O.HO$, being converted at common temperatures into proprionate of potassium, C_3H_5O,KO. Acetate of methyl, C_2H_3O,CH_3O, is not changed at ordinary temperatures by caustic potash, but when heated with it, acetate of potassium and methylic alcohol are produced. Again, formate of ethyl, CHO,C_2H_5O, when heated with caustic potash, is changed into formate of potassium, CHO,KO, and ethyl alcohol, C_2H_5HO. These chemical isomers are the metameres mentioned in the preceding article, their behavior depending upon the manner in which organic radicals enter into their composition. See RADICAL, in chemistry. Another class of isomeric bodies are called polymeres.

ISOMETRIC PROJECTION (Gr. *ἴσος*, equal, and *μέτρον*, measure), a kind of drawing used by architects and engineers for purposes of construction. It is an orthographic projection in which one plane or projection is employed, and therefore the measurement is without regard to the rules of perspective, the plane of the drawing being supposed to be at an infinite distance from the eye. It is used to delineate structures whose principal lines are parallel to three rectangular axes, and the plane of projection makes equal angles with these axes, which are called co-ordinate axes, and the planes, taken two and two, are called co-ordinate planes. The plane of projection passes through the point of intersection of the three axes, and this point is the center of projection. The projections of the co-ordinate axes are the directing lines of the projection, and form equal angles of 120° with each other.

ISOMORPHISM (derived from the Greek words *isos*, equal, and *morphe*, form) strictly signifies similarity of form, but it is now restricted by chemists to those substances which are not only similar in their crystalline form, but are also analogous in their chemical composition. The diamond (C), magnetic oxide of iron (FeO,Fe_2O_3), and alum ($KO,SO_3 + Al_2O_3,3SO_3 + 24aq.$), all crystallize in octohedra, but there is obviously no analogy in the chemical composition of these substances; on the other hand, the spinelle ruby (MgO,Al_2O_3), magnetic oxide of iron (FeO,Fe_2O_3), and chrome ore (FeO,Cr_2O_3), not only crystallize in octohedra, but (as their formulæ show) are also analogous in their chemical composition. Hence, the members of the latter group are truly isomorphous in the restricted sense, while the members of the former group present only one of the conditions of chemical isomorphism. In most cases, however, as Mitscherlich (to whom we owe most of our knowledge of this subject) has shown, the chemical composition of substances that correspond in form is analogous; and that chemist has further endeavored to prove that crystalline form is independent of the chemical nature of the atoms, and that it is determined solely by their grouping and relative position; the same number of atoms combined in the same way always producing, as he asserts, the same crystalline form.

Miller, in his *Chemical Physics*, gives fifteen groups in which the existence of isomorphism has been distinctly ascertained. From these we select three groups—one of elements, and two of compounds:

Arsenic	Chloride of Potassium, KCl	Alumina Al_2O_3
Antimony	Iodide of Potassium, KI	Sesquioxide of Iron Fe_2O_3
Tellurium	Bromide of Potassium, KBr	Sesquioxide of Chromium, Cr_2O_3
	Fluoride of Potassium, KFl	Sesquioxide of Manganese, Mn_2O_3

The discovery of the coincidence of similarity in crystalline form where the chemical composition is also similar, is the most important generalization yet arrived at in the scienee of crystallography; and in chemistry it has been of essential service in faeilitating the classifieation of compounds, and in determining the combining numbers or atomie weights of the elementary bodies.

ISOP'ODA (Gr. equal-footed), an order of malacostracous crustaceans of the section *edriophthalma* (q.v.), mostly aquatic—some marine, some inhabitants of fresh waters—but some terrestrial, inhabiting damp plaees, as the armadillo, woodlouse, etc. The body is flattened. The thorax consists of seven segments bearing seven pair of feet—six in the young before their first molting. The females have usually large plates attached to the thoracie segments, meeting to form a pouch for the eggs and young.

The interesting fossils called *trilobites* (q.v.) are supposed to be *isopoda*, or nearly related to them.

ISOTHERM'AL LINES (Gr. *isos*, equal, and *thermos*, warm) are lines laid down on maps to connect together plaees of the same mean temperature.—*Isothĕral lines* (Gr. *thĕros*, summer) are those whieh conneet places of equal mean summer temperature.—*Isocheimōnal lines* (Gr. *cheimōn*, winter) connect places of equal mean winter temperature.—Alexander von Humboldt was the first to lay down these systems of lines on maps in 1817. Their importance in reference to elimate, meteorology, and the geographic distribution of plants and animals, can hardly be overestimated.—If the whole surfaee of the earth were uniform, it is evident that isothermal lines would precisely correspond with the degrees of latitude, and there would be no isotheral and isocheimonal lines, as distinguished from the isothermal; but neither would the earth be habitable for man, or suitable for almost any of the animal or vegetable tribes which actually exist upon it. Isothermal, isotheral, and isocheimonal lines are therefore laid down altogether from observations recorded and compared. In laying them down, care must be taken to make allowance for the elevation of each place of observation above the level of the sea, they being all laid down as for that level. Isothermal lines are named according to the mean temperature whieh they indicate, the line of 50°, the line of 60°, etc. They are far from eorresponding with parallels of latitude, nor are they parallel with one another, but are eurved in sueh a manner as to indieate two northern and two southern poles or eenters of greatest cold. It is in the extra-tropieal parts of the northern hemisphere that these curvatures are greatest. The northern poles of cold are situated in the aretie regions, one to the n. of Siberia, nearly in the meridian of Jakutsk, and the other to the n. of America, nearly in the meridian of the most western part of Hudson's bay; and the isothermal lines throughout the greater part of the northern hemisphere deseend to a lower latitude in the e. of Asia and in the e. of America than elsewhere, ascending, however, to a comparatively high latitude on the western coasts of both the great eontinents. Thus, the line of 50° F., whieh passes through the n. of England and the n. of Ireland, and there reaehes its most northern latitude, descends below the latitude of New York, on the eastern coast of America. The distances of the isothermal lines are also remarkably various in different parts of the world. Thus, in the e. of North Ameriea, from Charleston to Labrador, the mean annual temperature varies more than a degree and a half for every degree of latitude; whilst in central Europe the variation is only about nine-tenths of a degree, and on the western coasts of Europe still less.

The isotheral and isoeheimonal lines are neither parallel among themselves nor with the isothermal lines, and it is in this that a chief differenee of eontinental and of insular climates appears, the summers of the former and the winters of the latter enjoying comparatively large proportions of the heat of the year.

Another interesting system of lines relative to temperature has been laid down by Mr. Dove, which he calls *isabnormal lines*—the term, however, is objectionable, as formed from words of two languages—lines eonnecting places whieh have the same exeess above or defect below the normal mean temperature of their latitude. See CLIMATE, METEOROLOGY, and TERRESTRIAL TEMPERATURE.

ISPAHÂN', properly ISFAHÂN, a famous eity of Persia, capital of the province of Irak-Ajemi, and formerly capital of the entire eountry, is situated on the Zenderud, in an extensive and fertile plain, 226 m. s. of Teheran; lat. 32° 40′ n., long. 51° 43′ east. The Zenderud is here 600 ft. broad, and is crossed by three noble bridges, one of them 1000 ft. in length, and having 34 arehes. Groves, orchards, avenues, and eultivated fields surround the city for miles; but the permanent beauty of the vicinity only serves to make the contrast all the more striking between the former splendor of the city and its present ruinous eondition. Miles of street are now almost tenantless, and many of the palaces are deserted, and rapidly falling to decay. In the *Chahar Bagh*, an extensive pleasure-ground on the s. of the city, is a palace called the *Chehel Sitton*, or "Forty Columns," once a favorite royal residence. Along the front of this palace is a double range of

columns, each rising from the backs of four lions in white marble. The pillars are inlaid with mirrors, and the walls and roof are profusely decorated with glass and gilding. The suburb Julfa, on the southern bank of the river, once a flourishing Armenian settlement of 30,000 inhabitants, is now little better than a mass of ruins. Ispahan, however, is still an important city, and the seat of extensive manufactures, including all sorts of woven fabrics, from rich gold brocades and figured velvets to common calicoes. Trinkets and ornamental goods in great variety, with fire-arms, sword-blades, glass and earthenware, are also manufactured. Many of its bazaars are still crowded daily, and its merchants are still influential enough to affect prices in India. Of late years, too, Ispahan has shown considerable signs of improvement; many of its edifices have been rebuilt; rice, an important article of commerce, is now largely cultivated in the neighborhood. Pop. estimated at 80,000.

Ispahan was a trading town of importance, and the capital of Irak, under the caliphs of Bagdad. It was taken by Timûr in 1387, when 70,000 of the inhabitants are said to have been massacred. During the 17th c., under Shah-Abbas the great, it became the capital of Persia, and reached the climax of its prosperity. Its walls were then 24 m. in circuit, and it is said to have had between 600,000 and 1,000,000 inhabitants. It was then the emporium of the Asiatic world; the merchandise of all nations enriched its bazaars, and ambassadors from Europe and the east crowded its court. In 1722 it was devastated by the Afghans, and some time afterwards the seat of government was transferred to Teheran (q.v.).

ISRAEL, Kingdom of. See Jews.

ISRAEL. See Jacob, *ante.*

ISRAELITES. See Jews, *ante.*

IS'RAFIL', one of the three angels who appeared before Abraham to announce the forthcoming fate of Sodom, and specially designated as the angel of music. According to the Koran, to Israfil is assigned the duty of sounding the "last trump" on the day of resurrection.

ISSAQUÉNA, a western co. of Mississippi, having the Mississippi river on the w., and the Yazoo and Sunflower on the e.; 600 sq.m.; pop. '80, 10,004. It is watered by the Yazoo and Sunflower rivers. The surface is level, covered with thick forests, and often inundated. The soil is fertile, and produces cotton, maize, and sweet potatoes. Capital, Mayerville.

ISSOIRE (anc. *Issiodurum*) a t. of France, in the department of Puy-de-Dôme, at the confluence of the Couze and Allier, 20 m. s.e. of Clermont. Pop.'76, 6,089.

ISSOUDUN, a manufacturing t. of France, in the department of Indre, is situated on the river Théolle, on the railway from Orleans to Limoges, 18 m. n.e. of Châteauroux. The principal manufactures are woolen cloth and yarn. Pop. '76, 11,293.

ISSUE, in law, means the point of fact in dispute which is submitted to a jury.

ISSUE, in law (*ante*). The point in dispute between the parties to a suit may be one either of law or of fact. If the former, it is decided by the court without the intervention of a jury; if the latter, it is determined by a jury, or, in equity practice, by a judge. In some of the states of the union issues of both kinds may by consent of parties be tried by a referee. When a court of law or equity is sitting without a jury, it sometimes happens that a question of fact arises upon which the decision of a jury is desired. A fictitious suit is thereupon framed, involving the point in question, and brought to trial before a jury summoned for the purpose. The verdict rendered being returned to the court, is accepted as a settlement of the issue of fact, and the trial of the cause out of which that issue grew thereupon proceeds. In the state of New York a feigned issue in such cases is not required, the actual question as it arises being submitted to a jury by order of court.

ISSUS, anciently, a seaport on a gulf of the same name in Cilicia, Asia Minor, celebrated for a victory which Alexander the great obtained here over Darius (333 B.C.), by which the camp and family of Darius fell into his hands. Its exact site has not been ascertained.

ISTALIF', a t. of Afghanistan, situated 22 m. n.n.w. of Cabul, on a tributary of the Cabul river. In 1842 it was partially destroyed by the British. Previous to that event, it had 15,000 inhabitants, who were employed chiefly in spinning, weaving, and dyeing cotton.

ISTER. See Danube, *ante.*

ISTHMUS (Gr.), in geography, a narrow neck of land joining two portions of land. The name isthmus was by the ancients often employed without any addition to designate the isthmus of Corinth, joining the Peloponnesus to continental Hellas. Here there was a famous temple of Neptune, and here also were celebrated the Isthmian Games (one of the four great national festivals of Greece), at first every third year, and afterwards every fifth year. They were said to have been originally instituted by Sisyphus, and afterwards restored by Theseus. The games, like those of Olympia, consisted of athletic exercises, with the addition of competitions in music and poetry. The victors were crowned with garlands of fir, and their statues were placed in the temple of Neptune.

Down to the destruction of Corinth by the Roman gen. Mummius (146 B.C.), the management of these games was in the hands of the rulers of that city, though the Athenians always enjoyed the seats of honor. The Romans added the coarser and more brutal amusements of gladiatorial exhibitions and fights with wild beasts. The spread of Christianity was fatal to their popularity, but we still read of them in the reigns of Constantine and Julian.

ISTHMUS CANALS. See INTEROCEANIC CANAL.

ISTHMUS OF DARIEN. See DARIEN.

ISTHMUS OF SUEZ. See SUEZ.

ISTIP, a t. of European Turkey, in Roumelia, on the Istip river; pop. 8,000. It is well built, and has a large trade. It contains some steel-works and the remains of an old castle.

IS'TRIA, an Austrian margraviate, which, with the county of Görz and Gradiska, and the town and territory of Trieste, forms the Austrian crown-land of the coast-districts or Küstenland. It consists of a peninsula projecting into the n.e. corner of the Adriatic sea, together with the adjacent Quarnero islands.

ISTRIA (*ante*), anciently *Histria*, a peninsula of s. Austria, projecting into the n.e. part of the Adriatic sea, and including some islands; between lat. 40° 35′ and 45° 50′ n. and long. 13° 23′ and 14° 40′ e.; 1908 sq.m.; pop. 254,905. The peninsula is 50 m. long, with an average breadth of 30 miles. A ridge of rocky mountains runs through its entire length, the highest point of which is Monte Maggiore, 4,200 ft. above the sea. The coast is rugged and rocky and has many excellent harbors. The soil is well adapted to vines, olives, and other fruits. In the mountains herds of cattle find pasture, and marble and freestone are quarried. The fisheries and salt-works furnish employment to many of the people. The Istrians belonged to the stock of Illyrians, and like them were pirates. The Romans subdued them first about the beginning of the 2d c. B.C., and reconquered them in the following century. Their independence was finally overthrown by C. Claudius, 177 B.C., their country, united to Italy, continuing subject to Rome till it fell into the hands of the Goths in the 6th century. The eastern emperors, drove out the Goths and retained the country till the 10th and 11th centuries, when it became subject to Carinthia and Dalmatia. The Venetians in the 13th c. seized the western part, and Austria the eastern, both of which on the overthrow of the Venetian republic, 1797, were by treaty made over to Austria. From the downfall of Napoleon in 1813 till 1849, Istria formed a part of the government of Trieste.

ISVORNIK'. See ZVORNIK.

ÍSWARA (from the Sanskrit *ís'*, to possess power, hence literally, *lord*) is an epithet applied to different Hindu divinities, but in mythological acceptation mostly designates SI'VA (q.v.).

ITACOLUMITE, a peculiar, siliceous, metamorphic schistose rock, found accompanying talcose slates and schists, composed principally of quartz grains with hydrous mica, which latter mineral makes it flexible, whence it is called flexible sandstone. Its flexibility is peculiar, bending as though made of short joints. It is found in Brazil, the Ural mountains, Georgia, North and South Carolina, and elsewhere, particularly in sections of these regions where there is gold. It has been observed by Lieber that in South Carolina itacolumite passes gradually into sandstone and conglomerate, showing its sedimentary origin.

ITAL'IAN ARCHITECTURE. This term is usually limited to the style practiced by the Italian architects of the 15th, 16th, and 17th centuries, and which has since been adopted in every country in Europe. This style originated in a revival of the ancient architecture of Rome. Although Gothic architecture had been practiced in Italy during the 13th and 14th centuries, it had never been thoroughly naturalized. The Italians always showed a preference for the round arch over the pointed northern form; and even in the buildings they erected in the pointed style, there is a certain simplicity and largeness of parts indicative of a classic feeling. As early as 1350, Giovanni Pisano, in the beautiful sculpture of the pulpit at Pisa, showed a return to the ancient models. Arnolpho di Lapo built the cathedral of Florence (1290–1300), and in his design proposed a great dome (a remarkably Roman feature) over the crossing of the nave and transept. This he did not live to complete; but he prepared the way for Brunelleschi, the chief aim of whose life was the accomplishment of the great dome of the cathedral. He went to Rome to study the ancient buildings there, at that time neglected and hardly known to the Italians themselves. After devoting a considerable time to exploring these monuments, he returned to Florence; and, after great opposition, succeeded in carrying out the construction of the dome as it now stands. From this time, the revival of Roman architecture went on rapidly. It was encouraged by the popes and other princes of Italy; and the invention of the printing-press soon spread a knowledge of the works of the Italian architects over Europe. At first, the Roman moldings and ornaments only were copied and applied to the existing forms. As the ancient style became better understood, its general principles were gradually adopted, until at length the

modern Italian style was formed. This style may be defined as ancient Roman architecture applied to the forms and requirements of modern buildings. It has been admirably applied to domestic, but it has never been so successfully used in ecclesiastical, edifices. The domes of the Italian churches render the interiors of these buildings very impressive, and are a feature for the introduction of which into the w. of Europe we are indebted to this style; but the façades of the churches are broken up into stories, and want the unity of a Gothic front.

Italian architecture is divided into three styles or schools, according to the places where it was practiced—viz., the Florentine, Roman, and Venetian. The Florentine buildings are massive and grand in effect; they are indebted to ancient Roman art chiefly for details, the outlines being the same as those of the older buildings, formed to suit the requirements of the place. Florence being a turbulent city, every man who had anything to lose had literally to make his house his castle. Accordingly, the basement floor is massively built with large blocks of stone, and the windows are small and plain. The Roman school naturally resembles more closely the ancient Roman buildings so numerous in that city—pilasters, arcades, etc., being freely used. In Rome, the plan of including two or more stories in one *order* of columns or pilasters with their entablature, with an attic or low story above, first originated, and was afterwards extensively, but, as already explained, not successfully applied to churches.

The Venetian style is, as might be expected in a city long accustomed to elegant palaces, the most ornate and picturesque of the Italian schools. Venice is crowded with specimens of all kinds from the earliest to the latest renaissance, and retains its individuality of style from first to last. Each story is marked by a separate tier of columns or pilasters with their entablature; the windows are arched and ornamented with columns, and the spandrils commonly filled with figures. The outline is varied in form, and is usually finished with a balustrade, broken by pedestals, and crowned with sculptured figures. It is from this most picturesque of the styles of the Italian renaissance that the other countries of Europe derived their peculiar forms. See Renaissance, Elizabethan, Cinquecento.

ITALIAN LANGUAGE AND LITERATURE. See Italy.

ITALIAN WINES. The wines of Italy are not very highly valued in other countries, and almost the whole quantity produced is consumed at home. Those of the n. are for the most part disagreeably acid, and scarcely any one of them can be preserved beyond one year. The vines are grown not so much in vineyards as in the hedgerows—a system which doubtless injures the quality of the wine. In the southern parts, however, where the vines are grown in low vineyards as in France, the wines are of a more fiery quality, and though prepared with little care, they require only to be better known to be esteemed by foreigners. A great variety of wines is produced in Piedmont, and those of Asti and Chaumont have acquired a reputation. The so-called Malvasia wines of Sardinia are produced at Sorso, Posa, Alghiere, and Naxo. The Malvasias of Caunonas, Monai, and Garnaccia are exported. The best Italian wines, however, are produced in Tuscany, partly because the climate is most favorable, partly because the former government and many nobles paid great attention to the improvement of the vineyards. Of vines, the Aleatico, or red muscat, is most extensively grown, at Monte Pulciano, between Sienna and Rome; at Monte Catini, in the Val de Rievole, and at Ponte a Moriano. The wine is purple in color, sweet, and slightly astringent in taste. A good red wine is made at Chianti, near Sienna, from a peculiar grape. The wines of Artimino, a former grand-ducal estate, and of Carmignano, are also of good quality. At Arcetri, near Florence, was prepared the best Verdea, or green wine, so called from its color, and much esteemed by Frederick the great of Prussia. Another celebrated wine is the Trebbiano, a gold-colored syrup. From the Venetian plain the cultivation of the vine extends into many of the valleys of the Alps which open into it, particularly that of Udine, the valley of the Tagliamento, up to Tolmezzo, and the Piave. In many of these valleys viticulture might attain the highest perfection if it were directed to quality, and if selected vines were grown in closed vineyards with that care and attention which are bestowed upon this branch of production on the Rhine and in France. The former Papal states of central Italy produce the wines of Orvieto, and the muscats of Albano and Montefiascone. Lachrymæ Christi is produced from vines grown at the base of Mt. Vesuvius, and is reputed to be the strongest of the wines in the Naples district. The province of Puglia or Terra d'Otranto produces the wines of Gallipoli and Taranto. Of Sicilian wines only one variety is exported in large quantities, namely, the white or light amber or brown wine, which goes under the name of the exporting town of Marsala. In the neighborhood of Messina there is grown the Faro wine, reputed to be the strongest wine of n.e. Sicily. Near Mt. Etna is made the wine of Terre Forte, in the vineyards of the Benedictine monks.

ITAL'IC VERSION (*Vetus Itala*), the name given to a translation of the Scriptures into Latin, which preceded the Vulgate. Its origin is commonly supposed to date from the middle of the 2d century. The Italic version was in general use down to the time of Jerome, who, being dissatisfied with the imperfections which it exhibited, undertook to revise and amend it, but ultimately produced the new translation known as the Vulgate (q.v.). The Italic version of the Old Testament was made, not from the Hebrew, but from the Septuagint.

IT'ALY. The geographical territory comprised under the name of Italy consists of a considerable stretch of peninsular mainland, closely resembling a boot in shape, besides several islands, situated in southern Europe, between lat. 36° 35′ and 47° n., and between long. 6° 35′ and 18° 35′ east. From the southern extremity of Sicily to the Alps its maximum length is about 600 m., its utmost breadth being 300 miles.

Boundaries.—Its boundaries on the n. are Austria and Switzerland, on the s. the Mediterranean, on the w. France and the Mediterranean, and on the e. the Ionian and Adriatic seas; while its natural limits are strongly defined by the Alps and the sea.

Area.—The kingdom of Italy—which comprises the whole peninsula, with the small exception of the republic of San Marino—has an area of about 110,000 sq.m., and was estimated to have in 1881 a pop. of 28,452,639. At the census of 1871 the figures were as follows:

Provinces.	Area in English Sq. Miles.	Population in 1871.
1. Alexandria	1,951.73	683,473
2. Cuneo	2,755.24	615,930
3. Genoa	1,588.23	716,284
4. Novara	2,526.83	567,212
5. Port Maurice	475.03	126,953
6. Turin	3,965.19	967,540
Piedmont and Liguria	13,261.25	3,677,392
7. Cagliari	5,223.90	392,958
8. Sassari	4,139.09	243,607
Sardinia	9,362.99	636,565
9. Bergamo	1,027.13	368,141
10. Brescia	1,784.06	450,750
11. Como	1,049.70	480,339
12. Cremona	670.31	300,595
13. Mantua	855.62	288,769
14. Milan	1,155.56	1,009,774
15. Pavia	1,285.67	448,357
16. Sondrio	1,274.09	120,722
Lombardy	8,502.14	3,467,447
17. Belluno	1,262.81	175,350
18. Padua	805.51	364,355
19. Rovigo	652.09	200,929
20. Treviso	938.74	352,538
21. Udine	2,482.59	481,786
22. Venice	849.21	335,379
23. Verona	1,101.94	367,701
24. Vicenza	1,040.93	363,022
Venice	9,134.12	2,641,060
25. Bologna	1,391.04	439,166
26. Ferrara	1,010.12	215,369
27. Forli	716.32	233,969
28. Massa and Carrara	679.71	161,944
29. Modena	966.10	272,845
30. Parma	1,250.83	264,509
31. Piacenza	965.16	225,750
32. Ravenna	742.20	219,625
33. Reggio Emilia	883.02	240,635
Emilia	8,604.50	2,273,812
34. Ancona	739.90	262,359
35. Ascoli Piceno	810.72	203,009
36. Macerata	1,056.68	236,719
37. Pesaro and Urbino	1,046.45	213,060
Marches	3,653.75	915,147
38. Umbria (Perugia)	3,715.39	549,833
39. Arezzo	1,276.41	239,901
40. Florence	2,263.05	766,326
41. Grosseto	1,712.19	107,449
42. Leghorn	127.28	118,851
43. Lucca	576.69	280,070
44. Pisa	1,179.95	265,295
45. Sienna	1,464.64	205,918
Tuscany	8,600.21	1,983,810
Latium: 46, Rome	4,534.68	835,324
47. Abruzzo Citeriore (Chieti)	1,104.81	339,961
48. " Ultr. I. (Teramo)	1,283.68	245,617
49. " " II. (Aquila)	2,436.52	333,791
50. Molise (Campobasso)	1,777.58	363,943
Abruzzo and Molise	6,602.59	1,283,312
51. Benevento	691.85	231,914
52. Naples	429.31	907,714
53. Principato Cit. (Salerno)	2,115.40	541,738
54. " Ult. (Avellino)	1,405.09	375,103
55. Terra di Lavoro (Caserta)	3,851.26	696,328
Campagna	8,492.91	2,752,797

EUROPE

British Miles
0 100 200 300 400 500
Geographical Miles
0 100 200 300 400 500

Longitude West 0 Longitude East 10 of Greenwich

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RUSSELL, STRUTHERS & CO., ENG'S, N. YORK

Provinces.	Area in English Sq. Miles.	Population in 1871.
56. Capitanata (Foggia)	2,969.95	319,164
57. Terra di Bari	2,292.48	604,365
58. Terra d'Otranto	3,293.39	493,263
Pouilles	8,555.82	1,416,792
59. Basilicata (Potenza)	4,123.54	501,880
60. Calabria Citra (Cosenza)	2,856.38	443,483
61. " Ultra I. (Reggio)	1,129.07	353,606
62. " " II. (Catanzaro)	2,308.49	412,226
Calabria	6,293.94	1,209,315
63. Caltanisetta	1,454.90	230,066
64. Catania	1,969.95	479,850
65. Girgenti	1,490.88	289,018
66. Messina	1,767.88	419,286
67. Palermo	1,964.04	615,905
68. Siracusa (Noto)	1,426.46	294,874
69. Trapani	1,216.18	236,324
Sicily	11,290.39	2,565,323
Total	109,738.61	26,716,809

Physical Aspect.—The physical aspect presented by the surface of Italy is diversified in the extreme. Northern Italy is, for the most part, composed of one great plain—the basin of the Po, comprising all Lombardy and a considerable portion of Piedmont and Venice, bounded on the n.w. and partly on the s. by different Alpine ranges. Throughout central Italy, the great Apennine chain gives a picturesque irregularity to the physical configuration of the country, which in the southern extremity of Italy assumes still wilder forms. In the highland districts of Naples, in which the Apennine ridge reaches its maximum elevation (10,000 ft.), the scenery exhibits a savage grandeur. Along the extensive coast-plains, as well as in the sub-Apennine valleys, the rural charms of this portion of Italy are extreme, while the brilliant flora and vegetation impart to it a novel character of beauty. The chief mountain-system of Italy is the frontier ridge of the Alps (q.v.), and its noble continuation the Apennines (q.v.).

Volcanic Zone.—Italy likewise comprises a considerable stretch of volcanic zone, which traverses the peninsula from the center to the s. parallel with the Apennines, and of which the most remarkable active summits are Vesuvius, near Naples; Etna in Sicily; and Stromboli in the Lipari isles.

Plains.—The great plains of Italy are those of Lombardy, which stretch from the Mincio to the Ticino and the Po; of Piedmont; the Venetian plains; the plain of the Roman legations; the plain of the *Campo Felice*, on which stands Vesuvius; the Apulian plain; the long, narrow Neapolitan plain of the Basilicata, 100 m. in length and 24 m. in breadth, stretching along the gulf of Tarento.

Rivers.—The great majority of the rivers of Italy are only navigable for small coasting boats or barges. By far the most important is the Po (q.v.), which rises on the borders of France, and flows into the Adriatic. It has numerous tributaries. Among the others may be mentioned the Adige, Brenta, Piave, Tagliamento, Aterno, Sangro, Metauro, Ofanto, Bradano, also belonging to the Adriatic basin; the Arno, the Tiber, the Ombrone, the Garigliano, and the Volturno, which belong to the Mediterranean basin. The classical and historical associations of many of the Italian streams, even when mere rivulets, invest them with perennial interest.

Canal System.—The canal system of Italy is most extensive in the north. Nine principal canals in Lombardy administer to the irrigation of the plains, and to the purposes of commercial communication, contributing in no small degree to the prosperity of the district. The *Naviglio Grande* or Ticinello is the finest hydraulic construction in Italy; it communicates between the Ticino and Milan, and has a course of 28 m. navigable for vessels of large size. It was begun in 1179. The *Naviglio Martesana*, 38 m. long, unites Concesa on the Adda with Milan; the *Naviglio di Pavia* is 18 m. in length; the bifurcated *Naviglio d'Ostiglia* unites the Po with the Adige. Two hundred and fifty-three canals intersect Piedmont, extending over a length of 1932 kilometers. Venice comprises 203 navigable and 40 minor canals. Numerous canals have been constructed for the drainage of the Pontine Marshes. This system of water-communication was early carried to a high degree of efficiency in Italy, and is of incalculable service in the agricultural districts.

Lakes.—The mountain lakes of Italy are famed for their picturesque beauty. They are mostly in the northern provinces of Lombardy and Venetia. The principal are Maggiore, Lugano, Como, Iseo, and Garda. The Roman lakes of Perugia, Bolseno, and Bracciano, that of Castiglione in Tuscany, and Celano in Naples, also deserve mention.

Springs.—The mineral and thermal springs of Italy are innumerable, and possess a great variety of curative and sanitary properties,

Climate.—In the northern provinces, the climate is temperate, salubrious, and frequently severe in winter; in the center, it assumes a more genial and sunny character,

while the heat of the southern extremity is almost of a tropical intensity. The singular clearness of the atmosphere sets off the landscape and monumental beauties of Italy with brilliant effect. The drawbacks of Italy's climate are the piercing tramontana or mountain winds; the deadly sirocco, which blights all nature at seasons along the western coast; and the malaria or noxious miasmata which issue from the Maremma of Tuscany, the Pontine Marshes, and the Venetian lagoons, generating pestilential fevers and aguish diseases in the summer season. The mean temperature of the leading divisions of the country throughout a whole year was as follows: Milan, 55° 4′ of Fahrenheit's scale; Rome, 59°; Palermo, 62° 5′; and in Sardinia, 60° 5′. The highest temperature at Rome rises to 95°, and in Sicily from 97° to 104°.

Products.—The staple products of Italy are corn, wine, oil, raw silk, rice, olives, and fruits, besides hemp, flax, cotton, which are largely grown, and even the sugar-cane is successfully cultivated in Sicily and the south. Agriculture, however, except in the n., is in a very backward condition. Nevertheless, the annual yield of cereal crops is considerable, and not only suffices for home consumption, but likewise for foreign export. The northern provinces or great plains, Tuscany, and the islands of Sardinia and Sicily, furnish most of the grain of Italy. The minor alimentary products are beans, peas, Indian corn, lupines, and chestnuts, which are largely used. The wines of Italy are very numerous, but owing to the defective mode of their manufacture, are unfit for exportation, as they can neither bear transport, nor do they improve by age. The wines of Naples are esteemed the best, small quantities of the famous *Lacrima Christi* and the *Vino d'Asti* being exported, while the Sicilian wines of Marsala form a considerable export trade. The most superior oil and olives are furnished by Tuscany, Lucca, and Naples; the oil of Florence, and that of Gallipoli and Puglia, being unequaled for purity and sweetness. Silk is chiefly manufactured in the northern provinces, the cultivation of the mulberry and the rearing of the silk-worm forming in Lombardy a principal occupation of the population. In Lombardy alone, upwards of 17,000,000 mulberry-trees are required to furnish food for the worms; and the silk exported from the Lombardo-Venetian provinces alone yields an annual revenue estimated at about £5,000,000. The best manufactured silk comes from Piedmont, Tuscany, and the Roman provinces. The cotton-plant is grown extensively in Sicily, and yields annually about 2,000,000 lbs., which is manufactured in the native looms of Tuscany, Piedmont, Lombardy, and Rome. The fruits of Sicily and the s. are exquisite in flavor, and embrace several tropical species. Oranges, lemons, almonds, figs, dates, melons, and the pistachio-nut are common to all orchards, and are largely exported. A considerable cheese-trade exists in the northern provinces, that of Lombardy alone yielding a revenue of more than £2,000,000. Italy also furnishes various valuable substances, such as sulphur, alum, etc. All the domestic animals of western Europe are to be found in Italy, besides buffaloes and camels, which are not uncommon. The fauna of Italy includes most of the British species, besides the wolf, lynx, boar, marmot, vulture, ibis, flamingo, and pelican. On the coast of the southern provinces are to be found many species of African water-fowl. The *ortolano* and *beccafico* are small birds, much esteemed for their flavor. The nocturnal fire-flies are a remarkable feature of insect life.

Fisheries.—The sea and fresh-water fisheries of Italy are considerable; the Mediterranean furnishing immense quantities of tunny, anchovies, sardines, mullet, pilchards, and mackerel. The export of anchovies and sardines is of vast extent. The river-fisheries yield salmon, trout, sturgeon, lampreys, tench, and barbel, etc.; and the lagoons contain excellently flavored eels. See COMMACCHIO. The crustaceans and shell-fish of the Italian seas are of great variety and delicate flavor, and are a favorite article of Italian consumption

Exports.—Among the exports of Italy may be noted raw silk, rice, fish, fruits of various kinds, marble, alabaster, sulphur, alum, silks, velvets, cloth of gold and silver, perfumes, mosaics in stone and wood, carvings in wood, macaroni and similar culinary pastes. porcelain, majolica, preserved fruits and meats, musical instruments, jewelry, and objects of art.

Army and Navy.—Recent statistics of the military and naval force of the kingdom of Italy give the following numbers. In 1884, the permanent army numbered 750,765, including 15,853 officers; the movable militia, including bersaglieri, numbered 341,250; the territorial militia (reserve), 1,021,954—total, 2,119,250 men. On a peace footing, the army numbers about 170,000 men. The fleet, in 1883, consisted of 72 vessels of war, with 523 guns, and about 15,000 men. Four first-class iron-clads, the *Italia, Lepanto, Duilio,* and *Dandolo,* are among the most powerful warships existing; there are 14 iron-clads of the second and third class, and 23 unarmored fighting vessels. In 1884, I. possessed 53 torpedo-boats, for coast and harbor defence in all weathers. Two squadrons of torpedo-boats are usually kept at Spezia, and one at Venice. The tonnage of Italy's effective iron-clads is 91,369.

Finances.—The revenue of the kingdom of Italy, for the financial year 1884, was £62,519,002; the expenditure was £62,227,073, leaving a surplus of £291,929. The interest of the public debt payable in 1884 was no less than £20,902,289.

Railways, etc.—In 1881 Italy had 5,100 m. of railway in operation, besides some in construction. There were 3,200 post-offices, and about 16,700 m. of telegraphs.

Religion.—The dominant form of religion of Italy is the Roman Catholic. The

Protestants are chiefly in the Waldensian valleys of Piedmont, and number only about 59,000. There are also 35,000 Jews. Political rather than theological reasons, however, before the abolition of the temporal power, brought the papacy into great disrepute among the progressive and national section of the country. Freedom of worship used to be denied to native Protestants by all the states except Piedmont; but since the late political changes of Italy, freedom of religious belief is encouraged by the government. The Roman Catholic clergy are estimated at 7 in the 1000 of the entire population. The church revenues of Italy have suffered considerable diminution, owing to the suppression of several orders, and the enforced sale of their lands by government.

Education.—The mass of the Italian people are incredibly illiterate; the primary elements of education, reading and writing, are by no means universal even among the better classes. A great educational impulse, however, has been imparted to all the recently united states, in which new public and endowed schools are daily being inaugurated. Normal schools, on the British principle, have been founded for the training of Italy's future teachers. The government has devoted to the cause of education a great part of the confiscated property of religious orders. Besides this, £1,000,000 is annually voted by parliament for education. The universities of Italy are numerous, many of them being of ancient date and European fame. There are in all 21 universities, of which 17 are supported by the state, and have near 10,000 students, the other four being provincial. The most largely attended are those of Naples (2,500 students in 1877), Turin, Padua, Pavia, Rome, Bologna, and Pisa.

History.—The ancient history of Italy will be more conveniently treated of under Rome; see also Etruria, Umbria, etc. We proceed to the dawn of modern history The western Roman empire fell before a mixed horde of barbarous mercenaries, chiefly composed of the Heruli, who proclaimed their leader, Odoacer, king of Italy (476 A.D.). After 13 years of military despotism he was slain, and his followers vanquished by the Ostrogoths, led by their great king Theodoric. The Ostrogoths (see Goths), in their turn, were vanquished (552 A.D.); and Italy was then governed by an *exarch*, or delegate of the emperor of Constantinople, whose seat of government was Ravenna. Narses, the first exarch, having been disgraced, in revenge invited the Lombards to invade Italy (568); and under their rule the ancient political system of northern Italy was superseded by the introduction of feudal and Teutonic institutions. The Lombards, in their turn, were conquered by Pepin (754) and Charlemagne (774), the latter of whom was crowned emperor of Italy. The Lombards, however, retained the great duchies of Benevento, Spoleto, etc., till the advent of the Normans. In 842 the Saracens invaded Italy, and took possession of many important places on the southern coast, which they held till 1016, when they were driven out by the Normans. On the fall of the Carlovingian dynasty (888), the crown of Italy fell to Berengarius I., chief of the Friuli, whose descendant, Berengarius II., did homage to Otho I. of Germany as his lord-paramount (951); and in 961 Otho deposed his vassal, and assumed sovereign rights over the Italian kingdom. From this period the chief towns of Italy rapidly emerged from their previous insignificance. A foremost object of Otho and his successors was the abasement of the papacy; and for a time these emperors successfully arrogated to themselves the right of nominating to the chair of St. Peter the candidate most attached to imperial rule. The accession of Konrad was the signal for various tumultuous risings of the Italians against their German rulers, who had grown the object of general detestation. Important feudal modifications during this reign tended still further to weaken the great feudal lords, and to exalt the inferior vassals and citizens. Under the reign of his successor, Henry III., we find the spirit of association, alike for offense or defense, waxing strong in Italy. The aggrandizement of the great Guelphic house of Este (q.v.), the bloody wars of the investiture (q.v.), and the establishment of an ameliorated form of municipal government (1100), are the three most notable events that occurred under the Franconian dynasty.

Under the Hohenstaufen dynasty Italy enjoyed an interregnum from foreign rule of about 60 years, which, however, was wasted in suicidal conflicts between the two factions of the Guelphs and Ghibellines. The most terrible incident of this period was the massacre of the Sicilian vespers (q.v.). Notwithstanding the inveterate internecine feuds of Italy, it was a period of great splendor and prosperity. The free cities or republics of Italy rivaled kingdoms in the extent and importance of their commerce and manufactures, the advancement of art and science, the magnificence of their public edifices and monuments, and the prodigious individual and national wealth to which they attained. Unhappily, a spirit of rivalry and intolerance grew up during this period of mediæval splendor, and in the arbitrary attempt of these states to secure supremacy over each other, they gradually worked their own destruction.

From the Sicilian Vespers (1282) to the reign of Henry VII. (1308), the chief historical incidents are the war between Genoa and Pisa, ending in the abasement and ultimate decline of the latter (1284); the quarrels of the Guelphic factions, the Bianchi and the Neri. in Tuscany; the papal efforts for their reconciliation (1301); the residence of the popes at Avignon (1304–1377); and the rise into importance of the oligarchic republic of Venice (1311). During the first half of the 14th c. the German emperors made several fruitless attempts to regain political supremacy in Italy; but in 1355 the emperor Charles IV. gave up the struggle

The tyrannical rule of several petty tyrants, of which the foremost were the Visconti or lords of Milan, replaced that of the emperors. From the middle of the 14th c. to the end of the 15th, the collective history of Italy ceases, each city being ruled by some powerful local family—as, for example, Verona by the Della Scala, Padua by the Carrara, Ferrara by the Este families, and Mantua by the illustrious princes of Gonzaga; Milan by the Della Torre, Visconti, and Sforza families. See also GENOA, PISA, FLORENCE, VENICE, NAPLES, etc.

From 1495 to 1525 Italy was the theater of the sanguinary struggles between France, the native rulers, and the Hapsburgs, but the battle of Pavia (1525) thoroughly established the ascendency of the German emperor, who appointed over the various states rulers of his own selection. During the 17th c. no events of note mark the history of Italy; the country being at peace, the various states pursued commercial traffic and industry, as far as their decreased limits permitted. In the following century some territorial changes were effected during the war of the Spanish succession. In 1793 Italy partially entered the European coalition formed against France, whose arms, however, proved irresistible. By the treaty of Campo Formio, Oct. 17, 1797, the entire state of Venice was transferred to Austria, while the rest of the country, under various designations, became for the most part a dependency of France. In this anomalous condition it remained during the rule of Napoleon. After the battle of Waterloo the final reconstitution of Italy was decreed as follows by the congress of Vienna: the kingdom of Sardinia reverted to the house of Savoy, to which were added all the provinces of the Genoese republic; the Lombardo-Venetian kingdom fell to Austria; the principalities of Modena, Reggio, and Mirandola, to which was soon annexed Massa and Carrara, were restored to the family of Este; Lucca was created a duchy for the rightful duke of Parma, whose hereditary state was conferred on Maria Louisa, ex-empress of the French; the duchy of Tuscany was restored to the Austro-Lorraine dynasty; the papal states to the pope; the kingdom of Naples to the Bourbons; while the petty state of San Marino was allowed to retain its republican form; and Monaco remained an independent principality under the prince of Valentinois.

By the congress of Vienna Italy was again cast at the feet of the papacy and of Austria, and this at a period when progressive aspirations were strongly reawakened in the Italian people. The system of resolute oppression adopted by the reinstated rulers speedily produced an irreconcilable hostility between themselves and their subjects, and a net-work of secret societies for the organization of national resistance spread throughout the entire land. The first-fruits of their organization were the risings of 1820 and 1821 in Piedmont and Naples, to demand constitutional rights. Austrian intervention quelled both these movements; and in 1831, when a similar rising occurred in Modena and the Roman states, it was subdued with sanguinary ferocity by an Austrian army. In these movements no distinct tendency towards national unity is perceptible; and only on the accession of Charles Albert to the throne of Piedmont (1831) was this grand idea of modern Italy propounded by Joseph Mazzini in an address to the king, urging him to assume the rôle of liberator and leader of Italy. The king of Piedmont, by yielding in some degree to the spirit of his time, prepared for Piedmont pre-eminence throughout the country. The accession of Pius IX. in 1846 seemed the inauguration of a new era for Italy: a general amnesty was followed by wise, liberal measures, which were also adopted by Tuscany and Piedmont, in emulation of Rome. Naples and the other states resolutely refused every measure of reform, and by a simultaneous outbreak in Sicily and Milan in Jan., the great revolution of 1848 was inaugurated in Italy. The revolution of France in Feb. imparted a strong impulse to that of Italy, and speedily Naples, Piedmont, and Rome conceded constitutional rights to the popular demands. The Milanese unanimously revolted against Austrian rule on Mar. 17, and after five days of heroic fighting, the Austrians were expelled from the city, and Radetsky, with 70,000 troops, compelled to retreat from its walls. On the 29th Charles Albert entered Lombardy, the avowed champion of Italian independence, and the leader of the national struggle. All the sovereigns of Italy contributed their best troops for the war, and on the Roman volunteers setting out for Lombardy, the pope himself in public pronounced a solemn benediction on their banners.

But ere a month had elapsed Pius IX. suddenly halted in his career of liberator of Italy, and abandoning the national cause, launched (April 19) a severe censure against "this unjust and hurtful war," which, chiefly by his own benediction, had been consecrated in the eyes of at least the more ignorant of the people. The recall of the Neapolitan troops was the first-fruits of the encyclical letter, which may be considered the tocsin of the subsequent fierce reaction through all Italy. For a time, however, the revolution made way; at the close of the year Rome became agitated; the pope fled to Gaeta; and on Feb. 8 the Roman republic was proclaimed under the presidency of Mazzini. On the same day the grand duke of Tuscany abandoned his state. Piedmont again assumed the lead, but the disastrous battle of Novara (Mar. 23) finished the national Italian war of 1848. The treacherous French expedition against the Roman republic, and the return of the pope in 1850, are the concluding acts of this great revolution.

The reaction was complete and merciless in every state save Piedmont, the king of which kept faith with his subjects, and observed the constitutional forms conceded in

1848. Austrian troops exercised a crushing tyranny, and from time to time Europe shuddered at the recital of the dark cruelties practiced in the dungeons of Naples and Rome. In the congress of Paris, at the close of the Russian war (1856), Cavour (q.v.) forcibly exposed the unavoidable dangers of a continuance of Austrian and Papal misrule. He strongly urged the expediency of a withdrawal of French and Austrian troops from Rome and the legations. In the beginning of 1859 Victor Emmanuel proclaimed from the Sardinian parliament his intention of actively aiding in the deliverance of the oppressed Italian population from the yoke of Austria. Towards the close of the year Sardinia and France jointly prepared for war with Austria, and in April, 1859, the war commenced. The victories of Magenta and Solferino were quickly followed by the abrupt and inconclusive peace of Villafranca, July 11, 1859, by which a confederation of the Italian states with the papal protectorate was proposed as the best solution of Italy's difficulties. The whole of Italy energetically rejected the scheme; and early in 1860, the various states whose sovereigns were in flight from the Lombard campaign voluntarily declared in favor of annexation to the kingdom of Piedmont. On March 18 Parma, Modena, and the Emilian provinces were incorporated with Sardinia; and the grand duchy of Tuscany on the 22d. On March 17 the law by which Victor Emmanuel assumed the title of king of Italy was promulgated amidst universal rejoicings. On March 24 the provinces of Nice and Savoy were ceded to France. On the 6th of the ensuing May Garibaldi, with about a thousand volunteers, set sail from Genoa for Sicily, where a revolutionary outbreak had taken place. His swift and comparatively bloodless conquest of the Two Sicilies is one of the most extraordinary incidents in modern history. Meanwhile, the Sardinian generals Cialdini and Farini having advanced into the papal provinces, the papal forces under Lamoricière were routed at Castelfidardo, which was followed by the capture of 4,000 prisoners at Loretto, and the surrender of Lamoricière at Ancona. Thence the Sardinian forces marched into the Abruzzi, while Victor Emmanuel proceeded in person to Naples. On Nov. 7, at Teano, Garibaldi unconditionally relinquished to his sovereign the southern provinces liberated by his genius and valor. Umbria and the march of Ancona were next incorporated with the kingdom of Italy. The kingdom of Italy was formally recognized by all the great European powers, with the exception of Austria. On the death of Cavour, June, 1861, the ministry of Baron Ricasoli was formed, but after a brief term of office was succeeded by that of Ratazzi, March 31, 1862, whose avowed subserviency to the French empire created considerable alarm amongst the liberals of Italy. One of its earliest acts was the incorporation of the southern volunteer forces with the regular army. On the 9th and 10th a great aggregate meeting of deputies from all the liberal clubs of the kingdom was held under Garibaldi's presidency; and on the 20th, having previously been entertained at a grand banquet by the royal princes, he set out on his almost triumphal tour throughout Italy, with the view of organizing rifle clubs amidst the youth of all the chief cities. An apprehension on the part of the government that Garibaldi contemplated an armed expedition in aid of Venice led to stringent and unlooked-for measures of repression. Ministerial orders were next transmitted to Garibaldi, prohibiting any further organization of the rifle societies. On June 20 Garibaldi arrived in Turin, and on the 28th landed at Palermo, in Sicily, where he met with a warm reception from prince Humbert, the heir-apparent of the Italian crown. On July 4 the ministry was seriously disturbed by the warmth with which Garibaldi denounced the French occupation of Rome. On the 7th a grand review at Palermo was held in his presence. Volunteers speedily hastened to join him, with the avowed intention of proceeding to Rome, despite the royal proclamation, which accused them of rebellion against their sovereign. A special message, accompanied by the royal proclamation, was forwarded by the king to Garibaldi, who, under the impression that he possessed the covert approbation of the sovereign, declined to desist in his expedition to Rome, but expressed his unshaken sentiments of loyalty to the king. On Aug. 22 Sicily was declared in a state of siege, the liberal clubs were dissolved, and an armed force dispatched to pursue and disperse the volunteers. Garibaldi reached Catania on the 18th, and some days later succeeded in effecting a landing on the coast of Calabria with the greater part of his followers. Gen. Cialdini having been appointed commissioner extraordinary in the island of Sicily, with full powers over the civil and military authorities, proceeded to the most stringent measures to effect the capture of Garibaldi. The "affair of Aspromonte," in which Garibaldi's small force of volunteers were compelled to surrender, their heroic leader ordering them not to fire on the royal troops, put an end to the semblance of revolution. The wounded chief was conveyed as a prisoner to the fortress of Varignano, at Spezzia. The amnesty granted to him and his followers by the Italian monarch enabled him to proceed to Pisa, whence he returned to his island-home of Caprera.

On the meeting of the houses of parliament, the ministry of Ratazzi had to sustain a formidable attack from the liberal members, who demanded the impeachment of the premier and his colleagues. Ratazzi, finding himself unsupported by any section of the house, after an unavailing defense, resigned his portfolio on Dec. 10, and was succeeded in office by signor Farini (q.v.).

At the close of the German-Italian war (see GERMANY), Venetia, on Oct. 3, 1866, became part of the kingdom of Italy by treaty with Austria. Turin, the chief town of

Piedmont, was the capital from 1859 till 1865; the court was transferred to Florence during the latter year. In 1867 the French army began to be withdrawn from Rome, and the national aspiration to have the Eternal City as capital of the kingdom of Italy seemed now near its realization. Some of the French troops remained at Rome until the urgent necessities of the Franco-Prussian war compelled the emperor Napoleon to withdraw them. The last detachment left the pontifical territory on Aug. 8, 1870; and on the 20th of the following month, the Italian troops, under gen. Cadrona, entered Rome after a short resistance by the pontifical troops, who ceased firing at the request of the pope. On Oct. 2, 1870, the kingdom of Italy assumed the last of its extensive limits, when the whole of the papal states were absorbed by it, and Rome was its recognized capital; and thus were realized the aspirations of many generations, the dreams of Mazzini, and the policy of count Cavour.—The last seven years of Victor's reign were uneventful, but were marked by the further consolidation and progress of the kingdom; and after his death (in Jan., 1878) his policy was maintained by his son Humbert. See Sismondi, Macchiavelli, Guicciardini, Denina, Botta, Balbo, and other historians.

Italian Language and Literature.—The Italian language, the most musical of all the tongues of Europe, is descended from the Latin, and there have been various opinions as to the way in which the transition took place. In the view, however, of the scientific students of language, there is nothing special in the case; the changes are sufficiently accounted for by that tendency to phonetic decay or corruption, which is always at work in a living tongue, and which is especially active in a chaotic and transition state of society like that of Italy at the downfall of the Roman empire. The already corrupt dialects of the uneducated become predominant, and being released from the fixing influence of a written literature, depart more and more from the grammatical standard; and in the case of Italy, the barbarian intruders would, to a still greater degree, mutilate the Latin, and introduce multitudes of words from the northern tongues. For some centuries this corrupting process went on, in the course of which the Latin gradually divested itself of its original classical peculiarities and degenerated into the impure or vulgar form known as the *Romana rustica*, or *lingua Romanza*, which became the prevailing language of the various races of south-western Europe, and received from each some of the most salient characteristics of their own native dialects.

This "rustic Latin" may be termed the direct offspring of Latin, and the parent of Italian; in the compositions of the Provençal poets, we find one form of it elevated to the rank of a polished, or *illustre*, written language as early as the 10th c., while the form which prevailed in Italy continued as late as the 12th c., an uncouth and vulgar dialect, contemptuously excluded from all learned composition. In the Sicilian court of the Hohenstaufen emperor, Frederick II., the Italian dialect was first rescued from this state of degradation; adopted by this monarch as the choice language of his court, it became the medium of his own and his son's literary and poetic creations, while his learned friend and secretary, Pier delle Vigne, may be termed the earliest Italian poet; his odes and canzones, composed a hundred years before Dante, are written in wonderfully pure Italian. The university of Naples, and several of the Sicilian schools, were founded by Frederick, whose cultivated and enlightened court became the center of the letters and learning of Italy, and the abode of the best intellects of the time. Here, Italian reached a considerable degree of refinement and correctness, and received the name of the aulic (court) or of the Sicilian language.

Poets have in all ages been the elevators and guardians of language; and we find Italian in the 12th and 13th centuries honorably employed by the poets of the age, especially by those of Tuscany, whose own oral dialect soon took precedence over all the others in polished expression and grammatical accuracy. The chief Italian poets of this age are Guido Guincelli, Guido Ghisilieri, Fabrizio and Onesto of Bologna, Guido Lapo of Mantua; and the Tuscan poets, Guittone d'Arezzo, Bonagiunta da Lucca, and Brunetto Latini Fiorentino, the illustrious preceptor of Dante. Fra Guittone, a member of the order of the Cavalieri Gaudenti, has left several compositions of merit, including sonnets and odes, but his most interesting literary legacy consists of 40 letters in prose, which are regarded as a valuable specimen of early Italian, being the most ancient epistolary composition in the language. The writings of these early poets possess more linguistic than poetic interest, and are to be found in various collections, chiefly in the *Rime Antiche* (1518), the *Poeti Antichi* by Alacci (1661), and the modern work of Rannucci, *Manuele della Letteratura del Primo Secolo* (Florence, 1837, 3 vols.). Brunetto Latini (1260), the preceptor of Dante, was reputed "a man of great sense and science." His work, *Il Tesoro*, is a marvel of heterogeneous knowledge. *Il Tesoretto* is a curious compendium of moral precepts, and *Il Pataffio* a still more curious production, the obscene levity of which earned for him a place in the *Inferno* of his pupil. Guido Cavalcanti, the cherished friend of Dante, was more of a philosopher than a poet. Italian also began to be now adopted as the vehicle of learned and scientific prose. The historical chronicles of Matteo Spinola, a Neapolitan, are the oldest specimen of Italian prose literature (1247–68); but the Florentine Malespini (died about 1280) is the first historical writer whose style is elevated and polished. In short, contemporary with the appearance of Dante (q.v.), the Italian dialect was rapidly super-

seding Latin in grave prose composition, as well as in poetry, and soon became the recognized oral and written polite language of the entire country, while various local dialects were preserved in use amongst the illiterate classes of the people. It has been finely observed that Dante found the Italian language in its cradle, and exalted it to a throne; the *Divina Commedia* imprinted on the Italian tongue a grave and majestic character, which at once qualified it to rank with the languages of Greece and Rome. The impetus imparted by Dante to the language and intellectual life of his country has continued to the present day.

The minor poets, Francesco Stabile, or Cecco d'Ascoli, burned by the church (1327), and author of *L'Acerba*, a critical attack upon Dante, and a wonderful mixture of learning, acuteness, and superstition; Francesco da Barberino (1264–1348); and Cino da Pistoja, the learned jurist and poet, whose work on jurisprudence, *Il Comento sul Codice*, and pleasing amatory verses, won for him the commendations both of Dante and Petrarch (1270–1336), claim mention before the great name of Francesco Petrarca (q.v.) (1304–1374), the creator of Italian lyrical poetry, and the enricher and perfecter of its language. The luster of Petrarch's fame, however, is not derived from his sonnets alone. Apart from their exquisite beauty and pathos, their classical elegance and simplicity of diction render them an abiding standard of Italian poetry. Italian, which, in its poetical capacities, we have seen created by Dante, polished and refined by Petrarch, was first molded into a perfect form of prose by the prince of novelists, Boccaccio (q.v.). The *Decamerone* is a series of tales, and Boccaccio's best known work. Boccaccio's style is deeply tinged by his culture of classical literature; and in his straining after the pompous majesty of Latin construction, he frequently exceeds the structural capabilities of his own language, which is naturally direct and simple in the order of its composition. Franco Sacchetti (1335–1400) of Florence, and Ser Giovanni Fiorentino (1348), also composed tales distinguished by the excellence of the language; while Dino Compagni and Giovanni Villani enriched the historical literature of Italy with excellent chronicles, written in a spirit of fairness, and with great beauty of style.

The 14th c. was lavishly productive of great original literary creations, the writers of that age, or *I Trecentisti*, according to their Tuscan appellation, being as distinguished for the sublime originality of their genius as those of the 15th c. were famed for their abstruse erudition and philosophy. Italian was the chosen language of the *Trecentisti*, and in their writings attained a high degree of refinement and purity. On the other hand, the scholastic writers of the 15th c. almost entirely excluded Italian from their works, substituting for the language of Dante and Petrarch a faulty form of Greek or Latin. To this circumstance may probably be attributed the languid development of literature during a period in which the most magnificent protection was afforded both by the pontifical and sovereign courts of Italy to the literature and art of the century, and when the discovery of printing imparted an impulse to the intellectual vitality of Christendom. Foremost among the encouragers of literature and art were the Medici at Florence; the Visconti, and, later, the Sforzas, at Milan; the houses of Gonzaga and Este at Mantua and Ferrara; the house of Aragon at Naples; and the pontiff at Rome. Marsilio Ficino, Pico della Mirandola, Leon Battista Alberti, are some of the most distinguished writers who discarded their mother tongue and adopted Latin; while a host of grammarians, historians, philologists, and theologians openly pronounced the *illustrious* Italian language a vulgar dialect, unfit for philosophical or learned composition. But this debasement of literary taste was happily of brief duration, and to Lorenzo de' Medici, entitled the "Father of Letters," is owing the literary revival of the Italian tongue. Under this princely patron of letters, arts, and sciences, public libraries were founded or replenished, learned societies inaugurated, rich antiquarian treasures collected, universities opened, and a true standard of literary truth and beauty once more set up. His friend and protégé, Angelo Poliziano, wrote elegantly both in Italian and Latin, and composed the first regular dramatic work in the former language, under the title of *L'Orfeo*. Towards the close of the 15th c. and the opening of the 16th, a taste for the romantic and heroic in poetry began to show itself. This taste was cultivated by Durante da Gualdo, by Luigi Pulci (q.v.) in his *Morgante Maggiore*, and by the still more famous Matteo Boiardo (q.v.), whose *Orlando Innamorato* evidently suggested the greatest of all the works of this kind, the *Orlando Furioso* of Ariosto. But by far the most important historical works of the time were written in Latin—for example, those of Silvio Piccolomini, Marc Antonio Sabellicus (d. 1506), Bernardo Giustinianus (d. 1489), and Georgius Stella (d. 1480). During the century of scholastic erudition, the spring of Italian eloquence flowed with sluggish course until the impassioned and unstudied oratory of Jerome Savonarola (burned 1498) revived the traditions of ancient Rome, and reminded his hearers that Cicero too was an Italian.

The 15th c., though not marked by much creative genius in literature, unquestionably exercised an immense influence on the Italian mind. The revival of letters, the invention of printing, the discovery of a new world, and the opening up of a maritime channel to the wealth and traffic of the Indies, co-operated, one may say, in producing that wonderful development of art and enterprise which the succeeding age exhibited; while the advancement of learning and science was promoted and systematized by the

founding of numerous universities and literary institutions, the aim of these latter being the diffusion of general knowledge and sound practical science. Many of the magnificent typographical treasures with which the great public libraries of Italy abound, belong to this golden age, and are due to the artistic taste of Aldo Manuzio. See ALDINE EDITIONS.

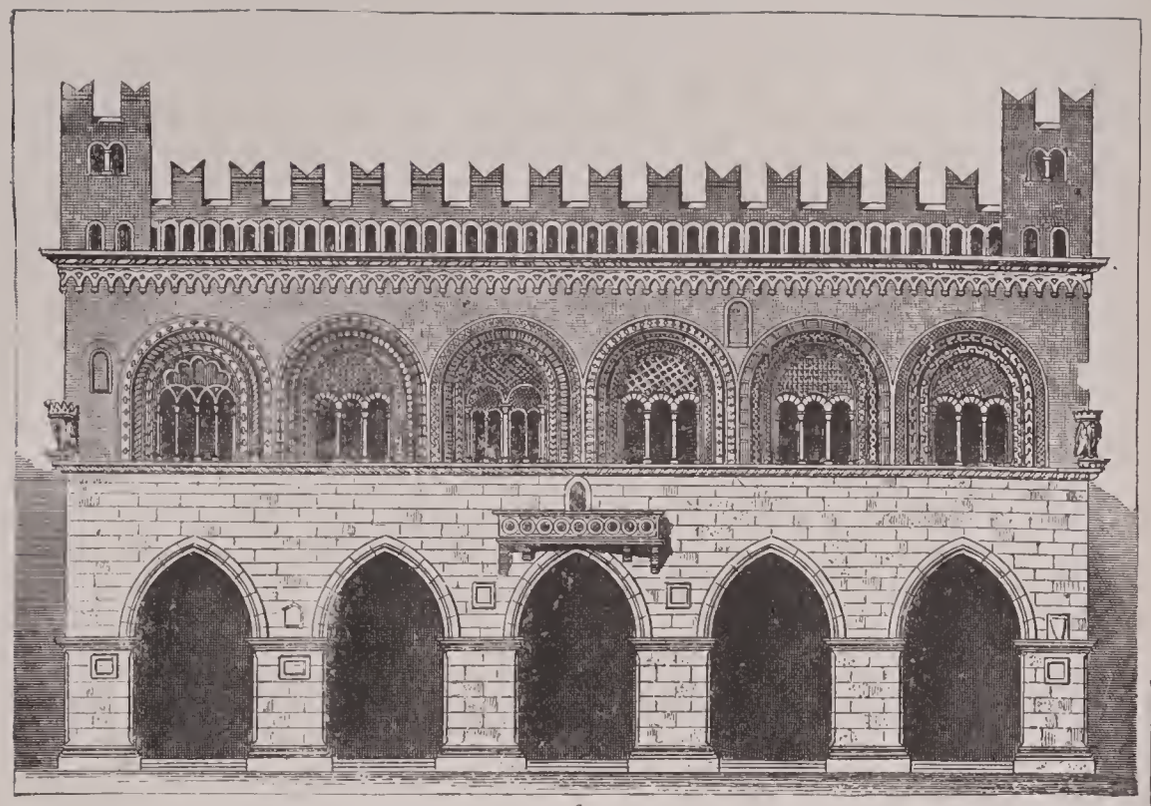
The 16th c. is confessedly the Augustan age of Italian letters, art, and science. In a galaxy of splendid names, the brightest are those of Ariosto (q.v.), Tasso (q.v.), Macchiavelli (q.v.), Guicciardini (q.v.), Raphael (q.v.), Michael Angelo (q.v.), Palladio, and Vignola. Pope Leo X. and his successors vied with the other sovereigns of Italy in their munificent patronage of those men of genius, who, under the title of Cinquecentisti, are considered models of pure and noble Italian composition. The *Orlando Furioso* of Ariosto, held to be the first genuine epic of chivalry and romance, celebrates the deeds of the legendary ancestors of the house of Este. It exercised immense influence, even amongst the most illiterate classes, by whom its choicest beauties were committed to memory, in order to be sung as the solace of labor in the field or city. The next great work of the century was *La Gerusalemme Liberata*, by Torquato Tasso (q.v.), whose father was also an excellent poet and scholar. Tasso's prose writings and epistles are noble in style, and grave and philosophical in matter (1544–95). Their best imitators are L'Alamanni, *Il Giron Cortese* and *L'Avarchide;* Rucellai; and Erasmo da Valvasone, in his *La Caccia* and *L'Angeleida* (or The Wars of the Angels), from which Milton probably borrowed some valuable hints (1593). Giangiorgio Trissino wrote the first notable Italian drama, *Sofonisba*. Besides this, the *Tullia* of Ludovico Martelli, the *Canace* of Sperone Speroni (1500–88), the *Torrismondo* of Tasso, and the *Edipo* of Andrea dell' Anguillara, deserve mention—the last is considered the best Italian tragedy of the time. The comedies of Bentivoglio, Salviati, Cecchi, Firenzuola, and others, are stamped with that prevailing spirit of licentiousness which disfigures many of the finest productions of the age. The popular dramatic pieces, or *Commedie dell' Arte*, enjoyed as high repute among the lower classes as the higher drama did in courtly and patrician circles. Some of the chief composers of these pantomimic comedies are Flaminio Scala, Angelo Beolco, Andrea Colmo. The writers of pastoral dramas inundate this epoch, but none can compete with Guarini (q.v.) in his sweet idyllic work, *Il Pastor Fido*. Poetry was first combined, during this century, with music—one of the earliest operatic compositions being the *Dafne* of Rinuccini (died 1621). The sonnets of Michael Angelo excel in a certain dignity and originality of thought. Vittoria Colonna, celebrated in the verse of Ariosto, was the most illustrious poetess of her time; which produced numerous other female writers, whose works have been collected and published by Domenichi.

Foremost among the prose-writers stands Macchiavelli; his *Arte della Guerra* (Art of War), *Istorie Fiorentine* (History of Florence), and political treatise, *Il Principe* (The Prince), all excel in their various styles. Giovanni Botero, Giannotti, and Paruta, are also political writers of high merit. Greater than either is Francesco Guicciardini, whose *History of Italy* has only one blemish, viz., want of brevity. The works of Bembo (q.v.), historian and poet, exhibit the Italian language subjected to a regular grammatical system. Literature was historically treated by Barbieri and Doni; art, by Vasari, Campi, and Lomazzi; and architecture, by Vignola and Palladio.

The progress of the age is equally perceptible in philosophy, which, bursting the fetters of scholastic formalism, displays the utmost freedom of speculation in the works of Cardan (q.v.), Bruno (q.v.), and Vanini. Many celebrated institutions or academies for the discussion and diffusion of knowledge date from the 16th c., one of the most noted being the academy Della Crusca, founded at Florence for the preservation and perfecting of the Italian language.

The 17th c., if less prolific in great literary names than its predecessor, is nevertheless the golden age of Italian science; it produced a host of illustrious discoverers in philosophy, mathematics, and physic. Such was the fame of Italian science at this period, that the universities of Florence, Naples, Pisa, and Venice were thronged with foreign students. Learned societies for the cultivation and practical demonstration of the physical sciences were opened throughout Italy (see ACADEMY). Libraries were collected and enriched, to afford every facility to learned research. The most celebrated savants are the world-famous Galileo (q.v.), Torricelli (q.v.), Borelli, the astronomer Cassini (q.v.), and Viviani, the pupil and biographer of Galileo; Malpighi and Bellini, anatomists and physicians. Contemporary with these, we find Gian Vincenzo Gravina, whose lectures on civil law attracted audiences from all Europe. In historical composition, the best known works are Sarpi's famous *History of the Council of Trent;* its equally famous refutation by Pallavicino; *The History of the Wars of the Netherlands*, by Bentivoglio; and of *The Civil Wars of France*, by Davila (q.v.). A few of the great names of literature are Bianchi, an acute thinker on political and social science; Monte-Cucculi, author of the *Aphorisms of the Art of War*, written with Spartan brevity of style; Bartoli, the Jesuit historian; and Segneri, the Jesuit orator.

The poets of the 17th c., at least Marini (q.v.) and his school, display a degenerate taste. Fondness for trivial conceits, false glitter, and artificiality, are their characteristics; but several of his contemporaries—Chiabrera, Guidi, Tassoni, author of the admirable mock-heroic poem, *La Secchia Rapita* (The Stolen Pail), Filicaja (q.v.), and others, have written with a grave energy of a style and a warmth of sentiment elevating to any



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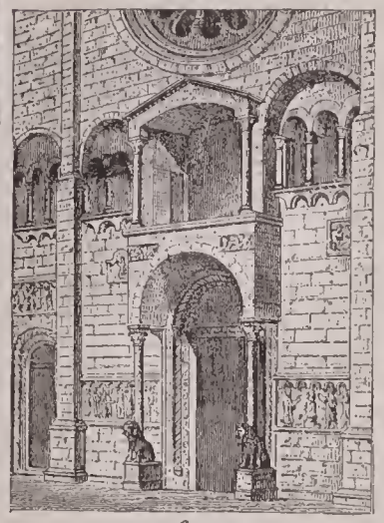

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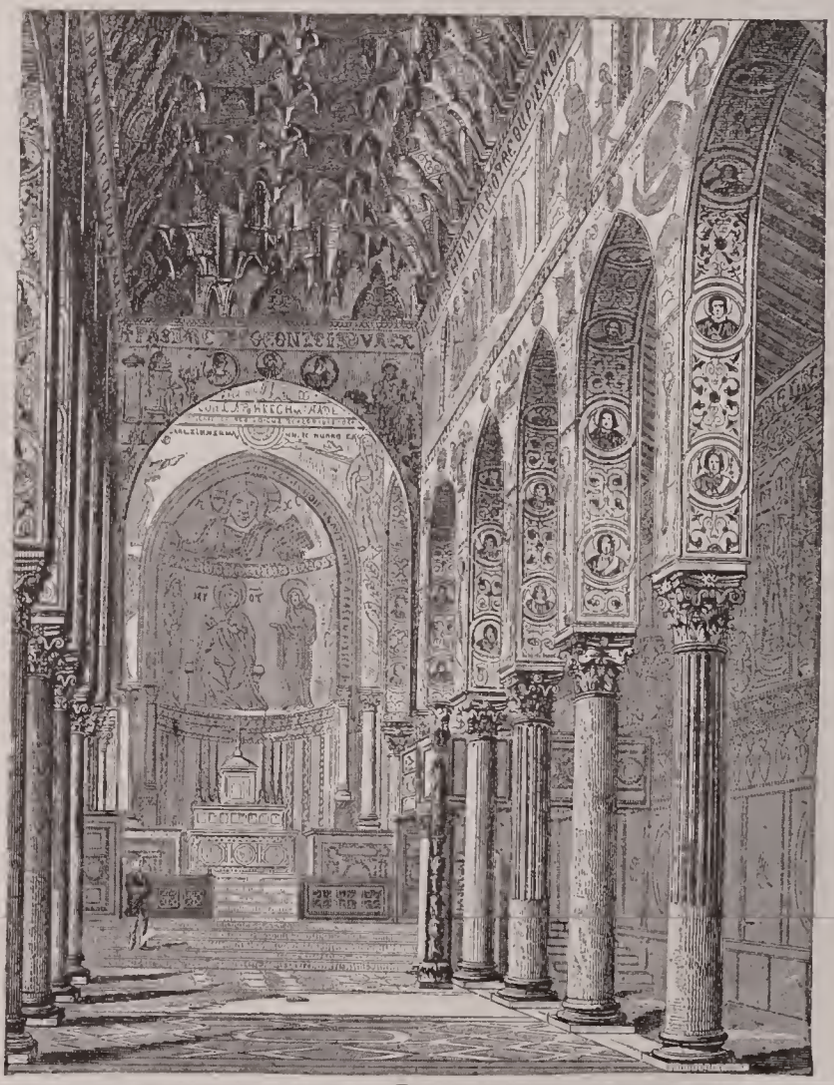

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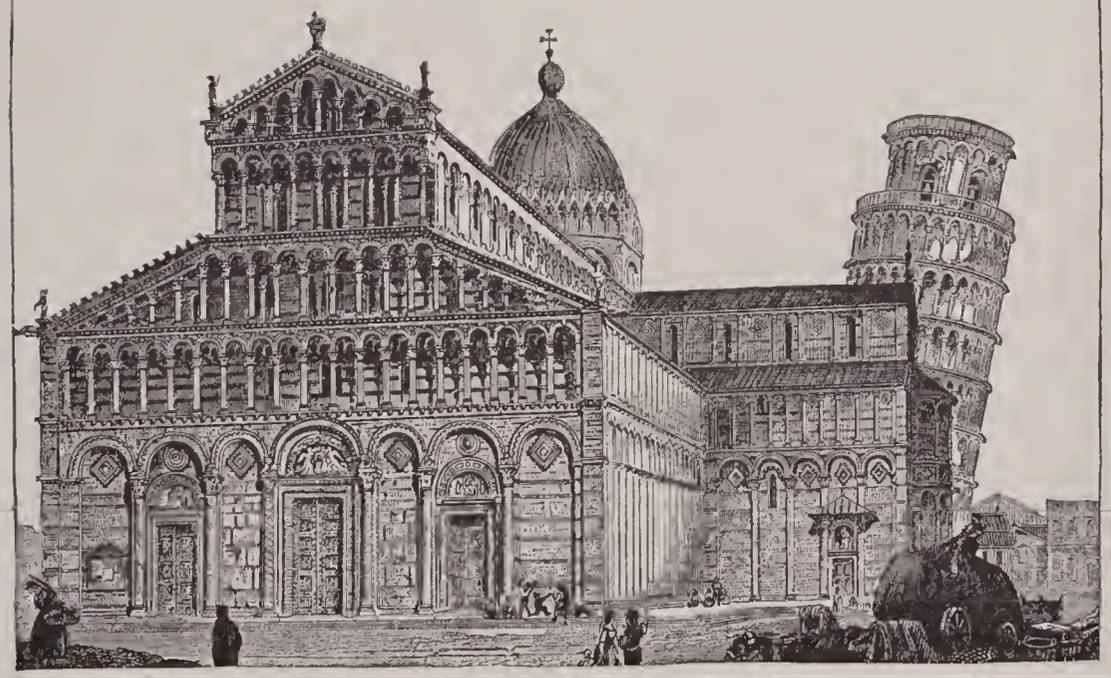

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ITALY.—1. Municipal building, Piacenza. 2. Interior of dome of St. Mark's, Venice. 3. Cathedral, Zara. 4. Cathedral and leaning tower, Pisa. 5. Door of cathedral, Verona. 6. Cathedral, Modena. 7. Interior of Palatino Chapel, Palermo.

age. The theatrical and operatic representations at the various sovereign courts were of exceeding splendor, as if in compensation for the paucity of dramatic compositions.

In the 18th c. a vigorous revival of poetry and letters took place. Giannone, in history; Capasso, in literature; Cirillo, in physic; Mazzochi, in archæology; Il Genovesi, in political economy; the brothers Galiani, in their respective sciences of architecture, political economy, and philology; Filangieri (q.v.) and Beccaria (q.v.) in the philosophy of jurisprudence; Mario Pagano, in the science of civil law; Poli (1746–1825), Volta (1745–1826), Galvani (1737–98), Scarpa (1748–1832), and Spallanzani (1729–99), in physical science; Maffei and Calsabigi, in poetry, are some of the names by which this period was ennobled. The 18th c. can also boast of the greatest names in Italian dramatic literature, Metastasio (q.v.) (1698–1782), who is considered the master of the pastoral drama: flowing, sweet, and silvery, the language of his gentle muse presents a strange contrast to the brevity, sternness, and classical plainness of Italy's greatest tragedian, Vittorio Alfieri (q.v.) (1749–1803), by whom a thorough revolution was effected in the drama of his country. A no less marked reformer of comedy is his contempory, Carlo Goldoni (q.v.) (1707–93).

During the present (19th) century, the genius of Italy has revived anew in science and literature. By the best writers of the day, a sound Italian style, untainted either by Gallicisms or by the false glitter of the *Seicentisti* school, has been adopted. One of the best modern poets of the classical school, Vincenzo Monti, has materially assisted this literary reform: the resolute combatant of the school of Marini, his fine works are rigidly molded on the pure *Trecentisti* style; and in his great poem, *Basvilliana*, the language is impregnated with a Dantesque grandeur, which has caused it to be said that the spirit of Dante has inspired the works of Monti. His translation of the *Iliad* and that of the *Odyssey* by Pindemonte are the best classical translations in Italian. In the wayward and fervid genius of Ugo Foscolo (q.v.), we find the reflection of the vicissitudes and political chaos of his times; his lyrical work, *I Sepolcri*, is written with extreme polish and faultless taste, which may also be said of the lyrics of Leopardi. Botta, Ricci, Bagnoli, Arici Sestini, Pananti, and Lorenzi deserve mention among the modern poets. Grossi is a spirited poet, who has written chiefly in the Milanese dialect. In the poignant and imbittered verses of Berchet, we recognize the double inspiration of his country's and his own political sufferings: and the gentler poet, Silvio Pellico, was already famous for his poetic tragedy, *Francesca da Rimini*, previous to his incarceration in an Austrian dungeon.

Rossetti, the exile and poet, and the most distinguished commentator on Dante's *Divina Commedia;* Giov. Battista Niccolini, whose drama, *Arnoldo da Brescia*, is one of the finest works of modern Italian genius; Leopardi, poet, philologist, and philosopher; Giusti (q.v.), the first Italian satirical lyrist of the 19th c.; Mameli, the patriot poet, who fell in 1848 at Rome; Prati, Aleardi, Dall' Ongaro, Carcano, and Montanelli are some of the most conspicuous worshipers of the Italian muse in the 19th century. Among the most successful novelists are Manzoni, whose *Promessi Sposi* has created a new school of fiction; Rosini (*Monaca di Monza, Luisa Strozzi, Il Conte Ugolino*), Cantù (*Margherita di Pusterla*), Grossi (*Marco Visconti*), and D'Azeglio, whose patriotic novels have exercised a wide influence on the youth of the country. *Ettore Fieramosca* and *Nicolo dei Lapi* are models of classical romances. Guerrazzi has written novels full of the noblest poetry. Bersczio and Ruffini are also worthy of notice. And among authoresses we may mention Teresa Bandinella, Cecilia de Luna Follicro, Guistina Michiel, Isabella Albrizzi (whose biography of Canova is a graceful and accurate delineation), and Signora Ferrucci, whose educational works possess high merit. The modern historians of Italy are very numerous. Balbo's *Summary of Italian History*, Botta's *History of Italy*, Coletta's *Naples*, Amari's *Sicilian Vespers*, Cantù's colossal work on *Universal History*, Zeni's *Compendium of Italy's History*, and Scopoli's *History of Italian Legislation*, are among the best works; while interesting historical monographs of various periods or states have been published by Canetti, Canale, Brofferio, Anelli, Cattaneo, the graphic recorder of the rising at Milan in 1848, and the learned compiler of the *Archivio Triennale*, or series of documents bearing on Italian modern history from 1848 to 1850. Political economy and philosophy have found in Mazzini, Gioja, and Romagnosi able exponents. The political writings of Joseph Mazzini (q.v.), apart from their political tendencies, have exercised immense influence on the youth of Italy by their high moral tone and beauty of language. The various schools of philosophy have found adherents and expounders in Borelli, Galuppi (1770–1846), Mamiani, Rosmini, Gioberti, and Tommaseo, mostly all exponents of ecclesiastical philosophy; while Testa, Franchi, Mastriani, and Cattaneo are the exponents of speculative and independent philosophy. Antiquarian and archæological science has been ably illustrated by Inghirami, Fannucci, Manno, Litta. Visconti, and Sestini. Bossi, Fumigalli, Ferrario, and Rosini have written the best dissertations on art. Biography, which as yet has been somewhat neglected by Italian writers, has found in prof. Villari a successful cultivator; his *Life of Savonarola* is written with liberality, grace, and eloquence. The most complete histories of Italian literature are Crescimbeni, *Storia della Volgar Poesia*, 6 vols. (Rome, 1698; Venice, 1731); Quadrio, *Storia e Regione d'ogni Poesia*, 7 vols. (Bologna, 1739); Tiraboschi, *Storia della Letteratura Italiana*, 14 vols. (Modena, 1772–83; 16 vols. 1787–94; 12 vols. Rome, 1785; 16 vols. Milan, 1822–26); Corniani, *Secoli della Letteratura Italiana*, 9 vols.

(Brescia, 1818–19); Maffei, *Storia della Letteratura Italiana* (2d ed., 1834); Giudici (1847), De Sanctis (1871); and *Storia letteraria d'Italia scritta da una società di amici* (Milan, 1870–77).

ITALY, FREE CHURCH IN, established by the Italian patriot and reformer Gavazzi. It originated with the dawn of civil liberty in 1848, when men began to read the Bible, though for the act they were sent to prison and exile. But in 1853 a free church was begun in Turin. After Pius IX. had changed his liberal policy, Gavazzi was arrested by his orders, but, being rescued by the citizens of Viterbo, he visited England, Scotland, and subsequently the United States, where in addresses to crowded assemblies, he related the wrongs of the Italian nation. The movement for a free church made but little progress for want of union. In 1870 Gavazzi returned to Italy; a general assembly was held, in which 23 churches were represented; a confession of faith was prepared; and the name *Free Church in Italy* was adopted. This confession is a declaration of the principles held by all evangelical Christians, and the Free church is in harmony with the Waldensian and other Protestant churches. The constitution is partly Presbyterian and partly Congregational or Independent, the general assembly being composed of deputies from the churches, and each church independent of all the others in local affairs. The general assembly appoints the committee that superintends the entire work, and the funds collected by the commissioners are remitted directly to that committee. The Free Church in Italy had, '79, 71 places of worship, 1800 communicants, 800 Sunday-school children, 1700 day scholars, with 21 teachers, 15 ordained ministers, 15 evangelists, 49 elders, 67 deacons, and 11 deaconesses. There is scarcely one important town in Italy in which there is not a Free church congregation. A new church has recently been built in Turin. Native evangelists visit every place. There are several theological colleges. In Rome is a theological seminary near the Vatican, in which Gavazzi is professor of sacred rhetoric. The Free church of Scotland has given it a professor of didactic theology, and Christians in Great Britain have bought and presented to it the old church of San Jacopio in Florence. Recently a valuable church on the piazza San Marco in Venice was purchased. The Free church has received from the city of Florence an annual bounty for one of their schools, and the minister of public instruction in Rome sent a complimentary letter with 300 francs. The Free church, since its regular organization, has grown steadily, and its influence is felt in every province of Italy.

ITAMARATI', a beautiful cascade in Brazil, about 50 m. n.w. of Rio Janeiro. It is nearly perpendicular, and the height about 250 feet.

ITARD, Jean Marie Gaspard, 1775–1838; b. France. Without a medical education, he was appointed assistant surgeon in the military hospital at Toulon, at the hospital of Val de Grâce, and a physician to the deaf and dumb institution. He was noted for his training of the wild boy of the forests of Aveyron, of which he gave an account in two works, 1807, and for the success of his treatment of deaf mutes. His *Diseases of the Ear*, 2 vols., 1821, is a standard medical work.

ITASCA, Lake. See Mississippi.

ITASCA, Lake, a lake in Minnesota, lat. 47° 10′ n., about 8 m. in circumference, one of the sources of the Mississippi, and 1575 ft. above the sea. It is a beautiful body of water in the midst of pine-covered hills.

ITASCA, a co. of Minnesota, bounded by Rainy lake and Rainy Lake river, s.w. by the Mississippi; 5,200 sq.m.; pop. '80, exclusive of Indians, 124. It is drained partly by Big Fork river, and partly by some tributaries of Rainy Lake river. There are many lakes, marshes, and pine forests. There is here a reservation of Indians.

ITCH (known also as Scabies and Psora) is a contagious vesicular disease of the skin. All parts of the body, unless perhaps the head, are liable to be affected, but the most common seats of the disease are the wrists and hands, and especially between the fingers. The first sign of this affection is an itching sensation, which, upon minute examination, is found to proceed from a minute conical vesicle, while the adjacent portions of epidermis present a more scaly appearance than is natural. This condition of the skin is due to the presence of a minute acarus, the itch-mite (q.v.), which burrows within the epidermis, and excites the cutaneous irritation. The affected parts itch with increased intensity when the patient is warm in bed, or after the use of stimulating drinks or exciting condiments; and as he cannot refrain from scratching himself, the vesicles get more or less broken, and become interspersed with numerous little bloody points.

The itch being popularly regarded as a somewhat disreputable affection, and being highly contagious, it is very important that it should be distinguished from other cutaneous disorders. Eczema, prurigo, and lichen, are the affections most likely to be confounded with it; but eczema, though a vesicular disease, presents rounded and not conical vesicles, and at most only a pricking sensation, and nothing like the irritation of itch; while prurigo and lichen are papular disorders, and are not accompanied by the presence of vesicles; moreover, none of these diseases are contagious.

The itch is always communicated by contact, either immediately, as by the act of shaking hands, or through the medium of articles of clothing or bedding which have been used by a person suffering from the disorder. In some cases, the proximate cause

of the disease, the itch-insect, is conveyed to the sound person in its perfect form; while in other cases, the ova or embryos suspended in the fluid of the vesicles may be the mode of transmission.

The disease, if not cured, will go on for an indefinite period, probably for life; but in cold and temperate climates never gives rise to serious injury to the health. Numerous external remedies have at different times been employed for the cure of this disease, but the great remedy is sulphur, which may be regarded as a specific. In the case of an adult, Mr. Erasmus Wilson, our highest English authority on skin-diseases, recommends that "four ounces of sulphur ointment should be well rubbed into the entire skin before the fire, and particularly into the affected portions, morning and evening, for two days. It is desirable also that the patient should wear a flannel shirt, and retain the same during the whole of the treatment. On the morning of the third day, the patient should take a warm bath, and wash the skin thoroughly, with plenty of soap, when the cure will generally be found to be effected."

When patients strongly object to the smell of sulphur, which is not unfrequently the case, an ointment made by digesting over a vapor-bath, for 24 hours, three parts of stavesacre in powder, with five parts of lard, and then straining, may be used. According to M. Bourguignon (who has made numerous experiments on the deleterious action of medicines on the living itch-mite), this ointment will cure the disease in four days.

ITCH-MITE, *Acarus scabiei*, or *sarcoptes scabiei*, is supposed by some naturalists to have been referred to by Aristotle in the 5th book of his *Historia Animalium*, cap. 31. But although the itch was undoubtedly known both to the Greeks and Romans, there is no certain evidence that a mite was recognized as the cause of the disease earlier than by Avenzoar, an Arabian physician of the 12th century. Throughout the whole of the middle ages, and till the present century, the necessary connection between the disease and the mite was universally recognized, as is obvious from the writings of Scaliger (1557) and others; and a paper read by Adams before the royal society in 1805, contains two very good figures of the mite. During the first ten years of this century, many practitioners, not succeeding in finding the animal, expressed doubts concerning its existence, and in 1812 there occurred a remarkable incident in the history of this mite. M. Gales, the chief apothecary to the hospital of St. Louis, tempted by a prize offered by one of the unbelievers, published in that year a treatise on the itch, in which he declared that he had seen more than 300 of the mites, and in which he gave a drawing of the animal, which, although it differed materially from the delineations of earlier observers, was at once accepted as an exact representation of the true parasite, and was copied for several years into all works treating the itch, until Raspail discovered that M. Gales's memoir was a tissue of deceptions, and that the animal which he had figured was the *cheese-mite!* The existence of the itch-mite was now more distrusted than ever, until, in 1834, Renucci, a Corsican student, demonstrated the presence of the creature. Many points regarding the structure and habits of this curious animal have been since revealed by the investigations of Gras, Raspail, Hebra, Gudden, and especially De la Foad and Bourguignon, who have presented to the French institute *A Practical Treatise on the Entomology and Comparative Pathology of the Itch as it occurs in Man and the Domestic Animals*, which has been published in the last volume (1862) of the *Memoires présentés par divers Savants à l'Académie des Sciences.*

The adult female mite is considerably larger than the male; it is visible to the naked eye, and forms a roundish grayish-white corpuscle, not unlike a starch granule; it is about one-fifth of a line in length, and one-seventh in breadth. When seen under the microscope, it presents a truncated tortoise-like shape, and is seen to be studded with hairs and bristles. The head terminates in two pairs of mandibles, and these mandibles afford good characteristic distinctions of the species.

In order to penetrate the horny layer of the epidermis, the mite assumes, according to Gudden, a nearly perpendicular position; and to avoid as much trouble as possible, it usually selects such spots as give least resistance, such as the space between the fingers, the inside of the wrist, etc. Once fairly buried, it does not again come out, but burrows, and forms tortuous galleries within the skin. These galleries resemble the mark which is formed when a pen is drawn lightly over the skin without causing a scratch. In young children, and in persons with a delicate skin, they appear of a grayish-white color; while in persons with a coarse dirty skin they are of a blackish tint. At certain intervals, the galleries are pierced by small openings, for the admission of air; it is through these openings, which sometimes appear like very minute black dots, that the young escape. The vesicles characteristic of the itch-disease are attributed to a poison ejected by the mite. The males are smaller and much scarcer than the females.

There are numerous species of itch-mite (*sarcoptes*) which infest the lower animals. One of them (*S. canis*) produces *mange* (q.v.) in dogs; another (*S. equi*), a comparatively large species, sometimes occurs in horses; another (*S. bovis*) in oxen in some parts of Europe; another (*S. ovis*) in sheep. Some of these are occasionally transferred to human beings, and cause irritation and annoyance, which, however, seems to be limited to the life of the individual mites transferred, the situation not being congenial enough for their increase.

For further information on the structure and habits of this animal, the reader is referred to the second volume of Küchenmeister's work on parasites (translated for the Sydenham society), and to Bourguignon's treatise.

ITH'ACA (now THIAKI), one of the Ionian islands (q.v.), and the smallest of them except Paro. It lies 17 m. w. of the mainland of Greece, and 2 m. n. of Cephalonia. The surface is mountainous, but there are many pleasant valleys. Length, 15 m.; breadth, 4; area, about 40 sq. miles. It was celebrated among the ancients as the principality and home of Ulysses; and some Cyclopean ruins near Porto Molo are called by the islanders the ruins of the castle of Ulysses. In 1871 the population of the island was about 13,000, of whom about 2,500 were in the town of Vathi, its seaport and capital.

ITH'ACA, a village in the state of New York, United States, at the southern extremity of Cayuga lake, 162 m. w. by s. from Albany. It has a large trade in coal, and 30 mills and manufactories. Pop. '70, 8,462.

ITHACA (*ante*), the capital of Tompkins co., N. Y., 142 m. s.w. of Albany, 37 m. s. of Auburn, and 40 m. s.e. of Geneva; pop. '80, 9,105; a beautiful town, built partly on a plain, partly on slopes of high hills, amid picturesque scenery. Three streams here enter the lake, falling from the hills in a series of cascades of remarkable beauty. It is the seat of Cornell university, has several public and private schools, a preparatory school, a large free library, 15 churches, 2 national banks, good hotels, 6 newspapers, and several manufactories for paper, flour, agricultural implements, calendar clocks, carriages, steam-engines, and machinery. It is the terminus of the Cayuga Southern railroad, and on the Utica, Ithaca and Elmira railroad. A branch of the Delaware, Lackawanna and Western railroad extends from this place to Owego. Daily steamboats on the lake connect Ithaca with the New York Central railroad at Cayuga.

ITHU'RIEL. According to *Paradise Lost*, one of the two guardian angels directed by Gabriel to discover and bring before him Satan, who had surreptitiously obtained access to the garden of Eden for the purpose of beguiling Adam and Eve.

> Ithuriel and Zephon, with winged speed
> Search through this garden; leave unsearched no nook;
> But chiefly where those two fair creatures lodge,
> Now laid, perhaps, asleep, secure of harm.
> —*Paradise Lost*, Book IV.

ITINERANCY, a term applied to limited pastorates in the Methodist church. The system originated with Wesley. To accomplish what he considered necessary for the revival of religion in England, he traveled from town to town, and, remaining but a day or two in a place, he adopted the plan of commissioning a few competent men to preach in the societies which he had organized. These helpers, as he called them, rapidly increased, but the societies increasing still more rapidly, he found it necessary to extend and methodize their labors on some plan of itinerancy, and accordingly appointed them to definitive "circuits" for a year. At first the whole country was divided into 7 of these itinerant districts, and at Wesley's death there were 72 in England, 3 in Wales, 7 in Scotland, and 28 in Ireland. The "circuits" were long, and the preachers were changed from one circuit to another every year or two. The "circuit" system is still retained in England, and exists in America among the feebler churches, and generally among the frontier settlements of the west. The societies in cities and the large societies in the country are generally "stations," each being supplied by its own pastor. Connected with the itinerancy of Wesley were the local ministry, or gifted laymen in secular business, who preached in the absence of the regular or itinerant preachers, and the weekly class-meeting of 12 members under an experienced leader. Wesley adopted this system from expediency, as it enabled one preacher to serve in many places, and made small abilities available on a large scale; and he found by experience that a frequent change of teachers was best. The itinerant system has always been cherished with great care by the Methodists, though the length of time for which a minister may remain on the same "charge" has varied at different times from one to three years. Many in the Methodist church are dissatisfied with the system of frequent removals, and its comparative advantages and disadvantages have been fully discussed in their leading periodicals. As yet there appears no general desire for its abrogation.

ITINERARY (Lat. *itinerarium*, derived from *iter*, a journey), the name given by the Romans to a table of the stages between two places of importance, with the distances from one to another. The itineraries of the ancients contribute much to our acquaintance with ancient geography. Of these the most important are the *Itineraria Antonini* and the *Itinerarium Hierosolymitanum*. The *Itineraria Antonini* are two in number, the *Itinerarium provinciarum* and the *Itinerarium marinum*, the former containing the routes through the Roman provinces in Europe, Asia, and Africa; and the latter the principal routes of navigators, who then sailed only along the coasts. They take their name from Antoninus Caracalla, by whom they were published, as corrected up to his time, but they seem to have been originally prepared at an earlier date.—The *Itinerarium Hierosolymitanum* was drawn up 333 A.D., for the use of pilgrims from Burdigala (Bordeaux) to Jerusalem. Of these itineraries various editions have been published.

ITINERATING LIBRARIES are small collections of books for popular reading contained in boxes, one of which, after being stationed in a village for a certain length of time, is transferred to another village, when another takes its place; and so on with any assigned number of boxes, each with its special assortment. The principle of shifting about boxes of books in this way in rural districts is referred to in the memoirs of Oberlin (q.v.), and has been long known in Wales, as well as the Highlands; but it met with no significant approval until it was improved upon and carried practically into effect on a broad scale by Samuel Brown, a merchant in Haddington (died 1839), who, taking a deep interest in popular instruction, set on foot itinerating libraries in several villages of East Lothian, 1817. The books were assorted to the extent of 50 volumes in a box. At first there were four boxes; and as the time allowed for each was two years at a village, the inhabitants of four villages had the perusal of 200 volumes in the space of eight years, at one-fourth the expense of the whole. The undertaking was begun and locally superintended from motives of benevolence, and the books were supplied gratuitously. The success attending this economic method of establishing libraries in a country district led to its extension over a wider sphere, on the principle of readers paying a small sum per annum, also of forming the assortments of books from the used new works in a central subscription library. There are several itinerating divisions in use in East Lothian and other parts of Scotland, as also in England, and 12 divisions were some time ago transmitted to Jamaica, where they were to be under the charge of missionaries. From all that can be gathered, the establishment of libraries of this simple class proves a valuable auxiliary to schools, churches, and other agencies of social improvement. For a variety of particulars on the subject, see a small volume, *Some Account of Itinerating Libraries and their Founder* (Edin. 1856).

IT'IUS PORTUS, the place where Cæsar, 55 and 56 B.C., set out for the conquest of Britain. Its site has been much disputed, but the best geographers, as D'Anville and Long, now agree that the actual spot was the village of Wissant or Duessant, on the coast of France.

IT'RI, a t. of s. Italy, in the province of Caserta, 6 m. n.w. of Gaeta, picturesquely situated on a lofty isolated hill, surmounted by a ruined castle. Itri was the birthplace of the celebrated bandit, Fra Diavolo. Pop. above 6,000.

ITU', a t. of Brazil, in the province of San Paulo, and 40 m. n.n.w. of the town of San Paulo, on the Tiete, in one of the most fertile districts of the province, and surrounded by lofty hills. Most of the houses are built of earth or mud in a framework of wood. Sugar-cane is extensively cultivated in the surrounding district. Pop. 10,000.

ITURÆA, a district of ancient Syria, which, with Trachonitis, formed in the time of Christ the tetrarchy of Philip, bequeathed to him by his father, Herod. The name is supposed to have originated from Itur or Jetur, one of Ishmael's sons, and the country to have formed part of the kingdom of Bashan. Pliny places it n. of Bashan, near Damascus, and J. de Vitry as adjoining Trachonitis. Ituræa was first annexed to Syria by Claudius. It is probably the same as Jedur, which contains 38 towns and villages, some of which are desolate, and the rest occupied by poor peasants.

ITURBIDE, Don Augustin de, Emperor of Mexico, was the son of a Biscayan nobleman and a rich Creole, and was b. at Valladolid, in Mexico, in 1784, or, according to others in 1790. On occasion of the first insurrections in Mexico, he was appointed by the viceroy, Apodaca, to the command of the militia of his province, and was successful against the insurgents; but he afterward inclined more to their cause, and being intrusted by the viceroy with the command of the army in 1821, he went over to them, when he found it impossible to obtain a separate constitution for Mexico. In May, 1822, he ascended the throne of Mexico as emperor, under the name of Augustin I., and the congress declared the crown hereditary in his family. He seemed to aim at ruling well, but rather as a despotic than a constitutional sovereign. His reign was full of trouble, and came to an end in less than a year by his abdication on Mar. 20, 1823. He received a pension of 25,000 piastres from the congress on condition of his residing in Italy, and went with his family to Leghorn. Having resided a few months in that city he repaired to England, where he organized an expedition for the recovery of the empire which he had surrendered; and issued a declaration that he would employ whatever influence he might obtain on his return to Mexico for the introduction of the political institutions of England into that country. He embarked May 11, 1824; landed in disguise at the port of Soto-la-Marina, July 14; was arrested on the 17th, and shot at Padilla on the 19th of the same month. The Mexican congress made a provision for his family. His son was adopted by the late emperor Maximilian of Mexico as his heir, Maximilian himself being childless. The overthrow of the Mexican empire, however, has cut off his prospect of a throne. See *A Statement of some of the Principal Events in the Public Life of Augustin de Iturbide, written by himself;* translated by M. J. Quin (1824).

ITURUP, the largest of the Kurile Islands, belonging to Japan, n. lat. 44° 29′, e. long. 146° 34′. It is 140 m. long, with an average width of 20 miles. It is of volcanic origin, fertile, and well-watered. The people are employed chiefly in hunting and fishing.

ITZA, Lake of. See Peter.

ITZAS', or ITZAES, an interesting tribe of Central American Indians, inhabiting the shores of lake Itza, in Guatemala. Their history points to an extensive early civilization. According to their traditions, one of the caneks or princes of Yucatan migrated south, 1420, and built a city on the island of Tayasal in lake Itza, which with the island soon contained a population of 25,000. They were visited by Cortez, 1525, who gives an account of their high advancement and friendliness of character. From their isolated position they were able to maintain their independence until 1698, when they were overcome by Manuel de Ursula, the Spanish governor of Yucatan, their cities laid waste and their temples destroyed. A small remainder of them are found on the islands of lake Itza, who are nominally Roman Catholic.

ITZEHOE, a t. of Denmark, in the duchy of Holstein, and the oldest in the duchy, is situated on the Stör, in a valley backed by finely-wooded hills, about 50 m. by water n.w. of Hamburg. Tobacco, chicory, sugar, and brandy are manufactured, and important horse and cattle markets are held here. Itzehoe also carries on a considerable general trade by water with Altona and Hamburg. Pop. 6,691.

The original castle around which Itzehoe gradually arose was built by Charlemagne in 809. Itzehoe was twice taken by Tilly in the thirty years' war, and in 1657 a great portion of it was burned down by the Swedes.

I'VAN, or I'WAN (the Russian form of John), the name of a number of Russian czars. —IVAN I. (1462–1505) may be regarded as the founder of the Russian empire. He was at first only grand duke of Moscow, but succeeded in shaking off entirely the yoke of the Tartars, and in subjecting a number of the Russian principalities to his own sway. In 1472 he married Zoë, a niece of the last Byzantine emperor, and thus brought the two-headed Byzantine eagle into the Russian arms, an emblem with which are connected pretensions not likely to be forgotten by the Russian emperors, although they may not be openly urged. This marriage opened up a way also for the entrance of European civilization into Russia.—IVAN II. (1533–84) did much for the advancement of his country in arts and commerce, as well as for its extension by arms. He concluded a commercial treaty with queen Elizabeth, after the English had discovered the way to Archangel by sea. He bore, however, the surname of the cruel, and merited it by his deeds, among which was the slaughter of 60,000 persons—other accounts make the number only 25,000—at Novgorod in six weeks, on account of a supposed plot to deliver up the city and surrounding territory to the king of Poland.—IVAN III., born Aug. 23, 1740, was the son of the duke Anthony Ulric of Brunswick-Wolfenbüttel, and the Russian grand duchess, Anna Carlowna. The empress Anna Ivanowna adopted him as her son and heir, but she dying soon after, and Elizabeth, the daughter of Peter I., seizing the throne, he was imprisoned during the remainder of his life; and by the orders either of the empress Catherine II., or of her counselors, was put to death by the officers of the garrison at Schlüsselburg, where he was confined, on Dec. 5, 1764. Those Russian Ivans are sometimes differently numbered, the reckoning being made to begin further back, with those who were only grand dukes of Moscow.

IVANO'VO, a t. of Russia, in the government of Vladimir, 150 m. w.n.w. of Moscow, on the river Ouvod. The name of Ivanovo is found in the annals of the 16th century. In 1741 it came into possession of the counts Sheremetieff, to whom, at the present day, belongs the territory of Ivanovo, the pop. of which amounts to 24,000. The pop. of the town proper is about 5,500. Ivanovo is the center of the Russian cotton manufacture, which gives employment to a great part of the inhabitants, not only of the town, but also of the surrounding district. There are also large cotton-printing establishments in the town. The cotton-manufacture of Ivanovo has increased to a very considerable extent since 1812, in which year, on account of the French invasion, the greater part of the workmen left Moscow, and settled here. The connection of Ivanovo, by means of a branch, with the Moscow and Nijni-Novgorod railway, has given a fresh impulse to the industry and commerce of the place.

IVES, ELI, 1779–1861; b. Conn.; graduated at Yale college in 1799, studied medicine with Dr. Levi Ives, his father, and was associated with prof. Benjamin Silliman in founding the medical school of Yale, where he was prof. of materia medica and of the theory and practice of medicine. He was once president of the national medical association.

IVES, LEVI SILLIMAN, D.D., LL.D., 1797–1867; b. Conn. He worked on his father's farm in his youth, served a year in the army of 1812, and studied at Hamilton college with the view of entering the ministry of the Presbyterian church. In 1822 he took orders in the Protestant Episcopal church. He had charge of churches in Philadelphia, Lancaster, Penn., and New York. In 1831 he was consecrated bishop of North Carolina. During the Tractarian controversy in the Episcopal church his Roman Catholic proclivities were so marked, that his diocese distrusted him and became alienated. In 1852 he visited Rome, and was admitted into the Roman church. On his return he was deposed from his bishopric. The rest of his life was spent in the work of education and in the prosecution of several philanthropic enterprises. He was prof. of rhetoric in the Roman Catholic theological seminary at Fordham, N. Y. He published *The Trials of*

a Mind in its Progress Towards Catholicism. He had notable gifts as a preacher and writer.

IVI'ZA (anc. *Ebusus*), one of the Balearic isles (q.v.), lies about 50 m. s.w. of Majorca. It is 23 m. long, and 12 m. broad; pop. 11,000. Iviza, the chief town, has a pop. of 5,970. Salt, the principal article of export, is extensively manufactured on the shore.

I'VORY was the name formerly given to the main substance of the teeth of all animals, but it is now restricted to that modification of *dentine* or tooth-substance which in transverse sections shows lines of different colors running in circular arcs, and forming by their decussation minute lozenge-shaped spaces. By this character, which is presented by every portion of any transverse section of an elephant's tusk, true ivory may be distinguished from every other kind of tooth-substance, and from every counterfeit, whether derived from tooth or bone. Although no other teeth, except those of the elephant, present this characteristic, many other animals, such as the walrus, narwhal, hippopotamus, etc., possess teeth, horns, or tusks, which, from their large size and from their density, can be used for the same purposes in the arts as those for which true ivory is employed. The ivory of the tusks of the African elephant is held in the highest estimation by the manufacturer, on account of its greater density and whiteness. The tusks are of all sizes, from a few ounces in weight to more than 170 lbs. each. Holtzapffel states that he has seen fossil tusks from the banks of the rivers of northern Siberia which weighed 186 lbs. each. There are various chemical processes by which it may be dyed of various colors, as black, blue, green, yellow, red, and violet.

Ivory articles can be made flexible and semi-transparent by immersion in a solution of phosphoric acid of sp. gr. 1.130, till they become translucent. They are then to be taken out, washed with water, and dried with a soft cloth, when they are found to be as flexible as leather. They harden on exposure to dry air, but resume their pliancy when immersed in hot water.

Much important information on the subject of ivory generally will be found in Holtzapffel's *Mechanical Manipulation.*

The tusks of the elephant have from very early periods constituted an important article of trade, in consequence of their great beauty as a material for ornamental manufactures, and even works in fine art. Ivory is frequently mentioned in the Old Testament. With the Greeks it became a most important material, and by the hands of the sculptor Phidias a statue was produced of the Olympian Jupiter, of such marvelous beauty and imposing majesty that it was considered a misfortune to die without having seen it. By the Romans, who were supplied from Africa, it was also extensively used, and by them its use was diffused over the whole of Europe. The art of working in ivory doubtless had its origin in India, where it has always been a much valued material, and formerly supplied indirectly much of the ivory sent to Europe. The value of ivory is in proportion to the size and soundness of the teeth. Below the weight of 5 lbs. they are called *scrivelloes,* and, formerly in the market, rarely brought 5 shillings per pound; but double that price has been given for teeth of unusually large size. The I. is becoming scarce, and in 1882, brought from £1,000 to £1,360 per ton. Sheffield ivory had advanced 20 per cent. within four years.

The so-called ivory obtained from the hippopotamus is in especial favor with dentists for making false teeth, on account of its pure white color and freedom from grain. The fossil ivory, which is found in considerable quantity in Siberia and the arctic regions, is uncommonly hard and brittle; it is also whiter, and wants its waxy softness. At present the demand for ivory is rapidly increasing, owing to the great taste and skill of some of the artists who work in this material, and as the supply increases but very slowly it is likely to become very dear. The beautiful art of ivory-carving has recently made very extraordinary progress in Europe, as has been shown by works in ivory sent to the various international exhibitions; some single specimens have had a value of £500.

IVORY, Artificial. See Celluloid.

IVORY, Vegetable. This curious material is furnished by one of the most beautiful of all the palm tribe. It grows on the Andean plains of Peru, and on the banks of the river Magdalena, and other parts of South America. The stem of this palm (the *phytelephas macrocarpa*) is short and procumbent, but it has, proceeding from its crown, a magnificent tuft of light-green pinnated leaves of extraordinary size and beauty; they are like immense ostrich-feathers rising from 30 to 40 ft. in height. The flowers are on a crowded spadix, and have neither calyx nor corolla. The fruit, which is as large as a man's head, consists of many 4-celled leathery drupes aggregated together, and contains numerous nuts of a somewhat triangular form, each nut being nearly as large as a hen's egg; they are called *corrozzo nuts* in commerce. The kernels of these nuts when ripe are exceedingly hard and white; in fact they resemble ivory so completely, that few names have ever been better applied than that of vegetable ivory. They have of late come into extensive use by turners in the manufacture of buttons, umbrella-handles, and small trinkets, and so closely resemble true ivory as frequently to deceive competent judges. Two or three millions of these nuts are now imported annually, and are chiefly used by the London and Birmingham turners.

IVORY. James, 1765–1842; b. Scotland; an eminent mathematician, educated at the university of St. Andrews, and professor of mathematics in 1804 in the royal military

college of Marlow. In 1819 he retired with a pension. He was a member of many of the learned societies of England and Germany. His essays read before the royal society of Edinburgh, and his papers in the *Transactions* of the royal societies of Edinburgh and London, evince a mind of remarkably acute analytical power. He was granted, in 1831, an annual pension of £300.

IVORY-BLACK. See BONE-BLACK.

IVORY COAST, that part of the coast of upper Guinea which lies e. of the Grain coast and w. of the Gold coast. It extends from cape Palmas to the Assinie river. It contains several small towns, which have a traffic in gold-dust, ivory, and palm oil. The coast is low and unhealthy, but in the interior are extensive and fertile table-lands.

IVRE'A, a t. of Piedmont, in the province of Turin, has (1871) a population of 7,577, and is situated on the left bank of the Dora Baltea, partly on level ground and partly on an eminence exposed to the siroeco winds. The cathedral is supposed to have been a temple of Apollo, and contains an ancient sepulchral monument of the age of Augustus. The carnival of Ivrea is famed for its picturesque allegorical pageants.

IVRY-LA-BATAILLE, a village of France, on the river Eure, 40 m. w. of Paris, pop. 1053. It was strongly fortified and held by the English, but was captured from them in 1449, and the fortifications were destroyed. It is better known as the scene of the great victory of Henry IV. of Navarre, Mar. 14, 1590, over the duke of Mayenne. The obelisk erected to commemorate the battle was removed in the French revolution, but restored by Napoleon in 1809.

IVRY-SUR-SEINE, a manufacturing t. of France, in the department of Seine, is situated on the left bank of the river of that name, 3 m. above Paris. Glass, earthenware, and chemical products are the chief manufactures. Pop. '76, 15,247.

IVY, *Hedera*, a genus of plants of the natural order *araliaceæ*, consisting of shrubs and trees, mostly natives of tropical countries. The flowers have 5 or 10 petals, and 5 or 10 converging or consolidated styles. The fruit is a berry with 5 or 10 cells.—The COMMON IVY (*H. helix*) is a well-known native of Britain, and of most parts of Europe, although it is more rare in the northern countries. Its long, creeping, branched stem, climbing on trees and walls to a great height, and closely adhering even to very hard substances by means of rootlets which it throws out in great abundance along its whole length, acquires in very aged plants almost the thickness of a small tree. Its 5-lobed, shining, stalked, evergreen leaves, clothing bare walls with green luxuriance, serve to throw off rain, whilst the rootlets of the stem suck out the moisture, so as to render damp walls dry, contrary to a common prejudice, that ivy tends to produce dampness in walls. It injures trees, however, both by abstracting their sap and by constriction. The flowering branches of ivy have ovate, entire leaves, very different from the others. Its small greenish flowers are produced in the beginning of winter, and the small black berries are ripened in the following year. The berries are eagerly eaten by many birds, although they have a pungent taste, and contain a peculiar bitter principle called *hederine*, and an acid called *hederic acid;* which are also found in a gummy exudation obtained by incisions from the stem, and occasionally used in medicine as a depilatory and a stimulant, and in varnish-making. An ointment made from the leaves is used in the highlands of Scotland to cure burns. In Egypt, the ivy was sacred to Osiris, in Greece to Bacchus (Dionysos), whose thyrsus was represented as surrounded with ivy; the Romans mingled it in the laurel crowns of their poets.

There are several varieties of ivy often planted for ornamental purposes, of which that generally known in Britain as *Irish ivy*, and on the continent as *English ivy*, is particularly esteemed for its large leaves and luxuriant growth. It is said to be a native of the Canary isles. Ivy grows readily from cuttings.—*H. umbellifera*, a native of Amboyna, is said to produce a finely aromatic wood; and *H. terebinthacea*, a Ceylonese species, yields a resinous substance which smells like turpentine.

IWA'KURA TOMO'MI. A Japanese statesman, b. in Kioto about 1825, of one of the illustrious families called kugé (court nobles). Made personal attendant upon the mikado at the age of 20, he openly opposed the parsimonious support given to the emperor by the Tokugawa usurpers at Yedo, whom he was further led to oppose from their assumption, in the official documents of the American treaty, of the preposterous title of "Tycoon" (exalted prince), their true title being shōgun (general). In 1858 Iwakura opposed the opening of the ports to foreign trade, a measure then being urged at Yedo by the American minister, Townsend Harris, but approved of the marriage of the princess Katsuno-Miya to the shōgun at Yedo. Having the overthrow of the Tycoon ever in view, Iwakura became the willing agent, in the palace, of Saigo, Kido, Okubo, and the other revolutionary leaders, and largely through him the Yedo usurpation was overthrown, the mikado restored to supreme power, the feudal system destroyed, and all Japan unified under the present government at Tokio. In 1872 Iwakura was made minister of foreign affairs, and junior prime minister of the right, and with Kido, Okubo, and Ito, sent on an embassy to the treaty powers of the world, coming to Washington first. He opposed the invasion of Corea, and was severely wounded by assassins in 1874. After 1867 I. T. became the foremost man in the Japanese cabinet, and nearest to the mikado. He was a man of great eloquence, energy,

decision, and culture—"the Bismarck of Japan." Three of his sons were educated in the United States. He d. 1883.

IXCAQUIXTLA, a t. in Puebla, Mexico; pop. 5,000; noted for a severe battle, Jan. 1, 1817, between the Spanish troops under La Madrid and the Mexican rebels under gen. Mier. It is occupied by the Chuchon Indians, the remnants of a race of southern Mexico who were conquered by the Aztecs and Mixtecas. Near the town are numerous mounds of earth or stone, now used by the Indians as altars for their offerings to Montezuma.

IXION, in Greek mythology, a king of the Lapithæ. When Deïneus, whose daughter Dia he had espoused, demanded the usual nuptial gifts, Ixion invited him to a feast on pretense of paying him, and caused him to fall into a pit of fire which he had secretly prepared. Shunned by all for his treachery, Jupiter in pity invited him to his table, but, discovering his attempt to seduce Juno, he condemned him to be fastened to a perpetually revolving fiery wheel. He was the supposed father of the centaurs.

IXMIQUIL'PAN, a t. and district in the state of Hidalgo, Mexico, on the river Montezuma, 80 m. n. of the city of Mexico; pop. 10,000. In 1861 it was for some months the head-quarters of gen. Zuloaga, who claimed to be president. The inhabitants are mostly Indians of the Otomi race. In the vicinity of the town there are several silver mines owned by English companies.

IXTAPALA'PA, a t. of Mexico, 10 m. s.e. of the capital; pop. 5,000. When Mexico was conquered it was a large and important city, noted for the beautiful gardens of the Aztec kings, and was the residence of a brother of Montezuma.

IXTLAHUA'CA, a district in Mexico, in the northern part of the state of the same name, 60 m. from the city of Mexico. It was anciently the abode of the large and important race of Mazahua Indians. It has silver mines, which for lack of capital are not now worked.

IXTLAN', a t. and district of Mexico, in the state of Oaxaca, 40 m. from the city of Oajaca, occupied mostly by the Zapoteco Indians. It has numerous silver mines. In the neighborhood of Ixtlan is the village of San Pablo Guelatao, the birthplace of president Benito Juarez.

IXTLILXO'CHITL, Fernando de Alva; b. Mexico about the middle of the 17th c., and lived to a great age. He was a descendant of the kings of Tezcuco, was interpreter of the native languages to several viceroys of Mexico, and a laborious collector of the ancient MSS. and traditions of his country. Both Mr. Prescott and lord Kingsborough made use of his writings in the compilations of their histories. Many valuable manuscripts of his are in the archives of Mexico.

IYE' YASU. See Tokugawa.

IZABAL, a seaport of Guatemala, 123 m. from the capital, on the s. shore of lake Dolce or Izabal. It is 40 m. from the sea by the river Izabal or Rio Dolce. The water being low at the mouth of the river large vessels go to Balize, and their cargo is sent by coasting vessels to Izabal.

IZALCO, a t. in the republic of San Salvador, Central America, 40 m. s.w. of the city of San Salvador; pop. 4,000, mostly Indians. It was anciently a place of importance, especially for the cultivation of the cacao, but the earthquake of 1859 greatly affected its prosperity. The soil is well watered and fertile.

This is also the name of a remarkable volcanic mountain 36 m. n.w. of the city of San Salvador. It is near a group of extinct volcanoes about 6,000 ft. in height; and the first eruption occurred in 1770 during an earthquake. The eruptions are almost incessant, though of unequal violence, and are visible far out at sea. Mariners call it the "light-house of San Salvador."

IZAMAL', a city of Yucatan, 50 m. s.e. of Merida. A church and convent were built here in the 16th c. by the bishop of Yucatan. The ruins of an ancient city are found, which Mr. Stephens describes in *Travels in Yucatan.*

IZARD, a n. co. of Arkansas, drained by the White river, and bounded by it on the n.w.; 550 sq.m.; pop. '80, 10,856. It is partly mountainous, and the soil is fertile. The staple products are wheat, maize, oats, cotton, and tobacco. Some minerals are found. The capital is Melbourne.

IZARD, George, 1777–1828; b. S.C. After receiving a classical education he traveled extensively in Europe. In 1794 he was appointed lieut. of artillery; in 1798 he had charge of the fortifications of Charleston harbor; and in 1799 was aid to gen. Hamilton. When the second war with Great Britain began he was appointed col. of artillery, Mar. 12, 1812; in 1813 was brig.gen.; in 1814 maj.gen. He was governor of Arkansas territory from 1825 till his death.

IZARD, Ralph, 1742–1804; b. S. C.; educated at Cambridge, England. He was a southern planter of great wealth in land and slaves inherited from his grandfather, who was one of the founders of South Carolina. He distinguished himself in the revolutionary war. During a residence in London, in 1771, he endeavored to show the British ministry the impolicy of their conduct towards the colonies, but, failing in his good

intentions, he retired in 1774 to the continent. In 1780 he returned to the United States, and by his influence obtained the appointment of gen. Greene to the command of the southern army. He evinced his patriotism by pledging his fortune to procure ships of war from Europe. He was a delegate to the old congress, 1781–83, and United States senator, 1789–95. He died at South Bay. He was polished in manners, an eloquent speaker, but of a passionate temper. His correspondence was published by his daughter in 1844.

IZDUBAR', a name found in Chaldean inscriptions recording ancient Babylonian legends, by some investigators supposed to be that of a veritable Babylonian king, but by others, including Max Müller and Rawlinson, supposed to signify the Hercules of the Chaldean mythology. The fact of the name occurring in inscriptions, possessed by the British museum, in connection with 12 legends not unlike those which describe the 12 labors of Hercules, has led to this latter conception. Meanwhile, other evidence derived from a similar source would appear to signify that this character was a king in Babylonia, who is, by some writers, identified with the biblical Nimrod, and who was deified after his death on account of his marvelous accomplishments. Mr. George Smith, of the British Museum, held this view of the matter, and in his *Assyrian Discoveries*, published in London in 1875, made a translation of the legends and inscriptions in question.

IZTACCIHUATL, an extinct volcano in Mexico, 15,705 ft. above the sea, near Popocatepetl, and 30 m. from Puebla. It is often called Sierra Nevada from its being covered with snow. The name, composed of the Mexican words *iztac*, white, and *cihuatl*, woman, was given on account of its resemblance to a woman in a white dress.

IZU'CAR, or MATAMO'ROS IZUCAR, a city and district of Puebla, Mexico. The city is 90 m. s.e. of Mexico, at the base of Popocatepetl; pop. 12,000. It is the center of a rich sugar region. A railroad was commenced in 1875 to connect it with Puebla. It takes its name from the Mexican gen., Manuel Matamoros.

J

J, THE tenth letter in our alphabet, has in Eng. the power of *dzh*; in Fr., of *zh*; and in Ger. of *y*. Both the sound and the character have sprung out of the original vowel *i*. When such a word as *Iulius* is pronounced rapidly, it naturally slides into *Yulius*. The Romans, though they had but one character for both, recognized this distinction between the vowel and the semi-vowel; and in the case of such words as *cuius*, *maius*, some writers doubled the *i*, and wrote one or both long, as cuIIus, or cuiIus. There is little doubt that the original Roman sound of this semi-vowel was that of Eng. *y* (youth), still given to it in German. But as this sound has a tendency to convert the consonant preceding it into a sibilant (see letter C), so it has a tendency to become itself sibilant, and *Yul-* slides into Fr. *zhul-*, Eng. *dzhul-*. This transition had already taken place in the later ages of the Latin, at all events, in the popular pronunciation, as appears from such inscriptions as *congiunta*, for *conjuncta; Zesu*, for *Jesu*.

It was the Dutch scholars of the 16th and 17th centuries that first introduced a regular distinction between the consonantal and vowel powers of *i*, and marked the former by the distinct character *j* (a long *i*, projecting below the line). The character has been adopted in the modern Teutonic and Romanic languages. The Italian represents the sibilant sound of *j* by *gi* or *ggi*, as *Giovanni*, from Lat. *Johannes; maggiore*, from Lat. *maior*. In Span., it has a guttural power, and is interchangeable with *x*, as *Xeres*, or *Jeres*.

JABBOK, a stream which intersects the mountain range of Gilead, and after a course nearly from e. to w., falls into the Jordan midway between the sea of Galilee and the Dead sea, 30 m. below the lake of Tiberias. Its whole length is about 65 miles. It was the boundary between the territories of the Amorites and Ammonites, and afterwards between the tribe of Reuben and the half-tribe of Manasseh. Its modern name is Wady Zerka. In its passage westward it runs more than once underground, but as it enters the more hilly country e. of the Jordan, its volume is increased from several springs which render it perennial. On approaching the Jordan it flows through a ravine deep, narrow, and wild, the steep banks of which, in nearly its whole course, are covered with cane and oleander. The scenery along the Jabbok is said to be the most picturesque in Palestine.

JA'BIRU, *Mycteria*, a genus of birds of the same family with storks and adjutants; the chief distinction from the storks being that the bill is a little carved upwards. The species are few, but are widely distributed in South America, Africa, and Australia.

JABLONS'KI, PAUL ERNST, 1695–1757; b. Berlin; the most distinguished oriental scholar of his time. After completing the usual course at Frankfort-on-the-Oder, he applied himself to eastern languages, especially the Coptic, and at the age of 21 was sent by the Prussian government to pursue his studies in the libraries of Oxford, Paris, and Leyden. On his return he became pastor of the Protestant church at Liebenberg, and

professor of theology at Frankfort. He was a member of the academy of sciences of Berlin. His works numbered 50, the most valuable of which is the *Pantheon Ægyptiorum*, 3 vols., 1750–52.

JABORANDI, a name given in South America to several species of plants used as diaphoretics. The plant grows chiefly in Brazil, and is most known in the neighborhood of Pernambuco. The botanical name is *pilocarpus pennatifolius* (Lemaire). The leaves are imparipinnate, composed of 4 to 10 short-stalked leaflets about 4 in. long, ovate-oblong, upper surface dark-green, shining, under surface paler, smooth or slightly hairy, midrib prominent. When bruised they are aromatic; taste somewhat bitter. The important constituents are a volatile oil, and an alkaloid called *pilocarpin*, which combines with various acids to form salts. According to Kingzett (1876) the chemical formula for the alkaloid is $C_{23}H_{34}N_4O_4$. According to Hardy the oil consists of a hydrocarbon, *pilocarpene*, having the formula $C_{10}H_{16}$; sp. gr. 85°; boiling-point, 352.4° F.; another hydrocarbon boiling at 492° F., and a third having a still higher boiling point, being a transparent solid when isolated, at ordinary temperatures. An infusion of the leaves or a fluid-extract or tincture, may be given internally; or one of the salts may be administered with a hypodermic syringe. When an infusion of 90 grains of the dried leaves, or an extract or tincture of corresponding strength is swallowed, it produces, in the course of two or three minutes, a flushing of the face, and in the course of five or six minutes drops of sweat appear on the forehead, and soon afterwards on other parts of the body and limbs. When sweating is established the face becomes pale, and a profuse secretion of saliva and nasal and bronchial mucus is poured out upon the mucous surfaces, and often there is an abundant secretion of tears. The salivation is often so profuse as to interfere with speech. The average duration of sweating is about one hour and a half, and the temperature usually falls 1° F. The average loss of fluid by sweating is nearly two pints, but the loss is said sometimes to be four quarts if the salivary and mucous secretions are included. Sometimes, though rarely, sweating does not take place, but salivation is more frequently absent than sweating. Vomiting is a usual occurrence, but the nausea is not great. The quantity of urine secreted during the sweating is diminished, and is passed with pain. Urea appears in the perspiration and saliva. The sight frequently becomes dimmed—an effect attributed to the action of the drug on the muscles of accommodation belonging to the lens. See Eye. Jaborandi is an effective galactagogue, or promoter of the lacteal secretion. When given in moderate doses it increases the flow of milk, and on this account is one of the most valuable late additions to the materia medica. The hypodermic injection of one-sixth or one-fifth of a grain of *pilocarpin*, or the muriate, produces much the same effects as the internal administration of the infusion of the leaves, but the action is more prompt as well as more lasting. With the hypodermic injection sweating always takes place, and vomiting is less frequent.

The medical uses of jaborandi are numerous. It often promptly relieves the distressing symptoms of pleurisy by removing the fluid in the pleural sac. See Pleurisy. In hydrothorax the relief given is even more noticeable, and also in many cases of dropsy, those arising from certain forms of kidney disease being often cured. In dropsy caused by heart-disease the relief which it affords is more temporary; and it should be used with great caution by those disposed to cardiac affections, as it possesses peculiar power in restraining the contractions of the heart, and is used by experimental physiologists in investigating the functions of the nervous system. In those dropsical affections, however, which are connected with simple hypertrophy of the ventricles, the use of jaborandi is attended with marked benefit. Dr. Gaspar Griswold, of New York, has employed the muriate of pilocarpin as a hypodermic injection in several cases of intermittent fever with almost uniform success. See Intermittent Fever. According to Galezowski, pilocarpin is equal to eserin, the active principle of the Calabar bean (q.v.), in producing contraction of the pupil, and is employed in ophthalmic surgery in cases where atropine, which produces dilatation of the pupil, is contraindicated. It is reported to have been used in *mumps* with signal benefit, and in *asthma* it has been found to give great relief. The salts of the alkaloid may be given internally in doses of from one-fourth to three-fourths of a grain, and hypodermically from one-sixth to one-fifth of a grain, dissolved in water.

JABUTICABA. See Eugenia.

JA'CANA, *Parra*, a genus of birds of the order *grallæ*, commonly ranked in the family *rallidæ*, natives of the warm parts of Asia and the Asiatic islands, Africa, and South America. In general appearance, they much resemble gallinules and coots. The feet, though not webbed, are adapted, by the great length of the toes and claws, for walking on the surface of weed-covered lakes and swamps, the native haunts of these birds, where they never fail to attract the attention of the traveler. The Common Jacana (*P. jacana*) is a South American species, abundant in Guiana and Brazil. It is about 10 in. long; black, except the back and part of the wings, which are of a bright chestnut color. The Indian Jacana (*P. Indica*) and the Chinese Jacana (*P. sinensis*) are also among the best known species. Both are found in India and other parts of the east.

JACARAN'DA WOOD, a very hard, heavy, brown wood, also called *rosewood*, from its faint agreeable smell of roses. It is brought from South America, and is produced by

several trees of the genus *jacaranda*, of the natural order *bignoniaceæ*. Several species of this genus are called *caroba* in Brazil, and are there accounted anti-syphilitic.—Several species of the nearly allied genus *tecoma* also have an extremely hard wood, as *T. pentaphylla*, a native of the Caribbean islands. The Brazilian Indians make their bows of the wood of *T. toxiphora* or *pao d'arco*.

JACARÉ, the *crocodilus sclerops* of Schneider, or more recently the *jacaré sclerops*, a South American reptile allied to the alligator and cayman, and whose place has not, perhaps, been definitely assigned. The alligators and caymans belong to the family *crocodilidæ*, and it has been proposed (see ALLIGATOR) to constitute a sub-family, *alligatoridæ*, dividing it into genera, *jacaré*, *alligator*, and *cayman*, and that classification is here adopted. The animal is found principally in the tropics, never, according to Azara, below 32° s. lat. It is particularly numerous in Brazil, where it attains a larger size than the North American crocodile or alligator. The head is rather thinner than that of the latter animal, the sides converging towards the snout, forming an isoscoles triangle. The surface of the cranial bones has a rough, scabrous appearance, as if diseased. The orbits are surrounded by prominent ridges of bone, connected together by a median ridge, the whole presenting the appearance of a pair of spectacles. Behind the orbit the skull is pierced by two very small holes. The cervical plates are very large, are arranged in four transverse bands, the first two containing four plates each, and each of the others two. The transverse bands of the back, varying according to age and, probably, with the individual, usually consist of two rows with two plates each, four rows with six plates each, five rows with eight plates each, two with six, and four with four plates each. The jacaré is greenish brown on the upper side and on the under side marbled with various shades of green and greenish yellow. It attains a size of from 14 to 18 ft., the head forming about one-ninth of the whole length. It is not as fierce as the Mississippi alligator, and is said never to have been known to attack men unless near where it has laid its eggs. Their preferred food is fish and waterfowl, of which there is generally an abundance in the waters which they inhabit. Their eggs are about the size of those of a goose, white, and much sought after by the natives as food, who also eat the flesh of the reptile, but it has a strong, musky smell, and but little juiciness. The female deposits her eggs in the sand in a single layer, covering them with straw or leaves, but the vultures find most of them, and many of the young are devoured by the adult males when the rivers become low and other prey is scarce. See ALLIGATOR, CAYMAN, and CROCODILE, *ante*.

JACHMANN, EDUARD KARL EMANUEL; b. Dantzic, 1822; a distinguished naval officer, rising from the position of a common sailor to be a director (1857–9) of the Prussian admiralty. In 1862 he commanded an expedition to China; in 1864 defeated the Danes at the island of Rügen; in 1867 was placed at the head of the naval department: in 1868 was made vice-admiral; and in the Franco-German war (1871), had command of the Baltic fleet, and was commander-in-chief of the whole German navy.

JACITA'RA PALM, *Desmoncus macroacanthus*, a palm found in the forests of the low lands of the Amazon district in South America. It has a slender, flexible stem (see DESMONCUS), often 60 or 70 ft. long. The outer part of the stem, cut into long strips, is much used for making those very strong and elastic plaited cylinders in which the grated root of the mandioc (cassava or tapioca) is squeezed to free it from its poisonous juice. It might probably be found useful for many other purposes, and seems eminently suitable for many kinds of wicker-work.

JACK, a co. in n. Texas, intersected by a fork of Trinity river; 900 sq.m.; pop. '80, 6,626. It is partly covered with forests. The soil is not much cultivated. Stock-raising is the chief employment. Co. seat, Jacksborough.

JACK. "The Jewish *Jacobus* was corrupted through Jacquemes to *Jacques* in France, and *James* in England; and *Jacques* being the commonest Christian name in the former country, was used as a contemptuous expression for a common man. *Jacquerie*, an insurrection of the peasants. The introduction of the word in the same sense into England seems to have led to the use of Jack as the familiar synonym of John, which happened to be here the commonest name, as Jacques in France. The term was then applied to any mechanical contrivance for replacing the personal service of an attendant, or to an implement subjected to rough and familiar usage."—Wedgewood's *Dictionary of English Etymology*. This will be found to explain the very varied use of this word, whether single or in composition, as *boot-jack*, *jack-boots*, *black-jack* (a leathern jug for household service). *Jacket* (the diminutive of Jack) is a short coat for homely use.

JACK, JAK, or JACA, *Artocarpus integrifolia*, a tree of the same genus with the bread-fruit (q.v.), a native of the East Indies. It is a larger tree than the bread-fruit, and has undivided leaves. The fruit is very large, weighing from 5 to 50, sometimes 70 lbs. The fruit, which is produced in very great abundance, resembles the bread-fruit, but is of very inferior quality, the pulp having a strong, unpleasant flavor; yet it forms great part of the food of the natives in some parts of India, Ceylon, etc. The seeds, which lie immediately under the rind, are very palatable when roasted. The timber, which is yellowish, is used for almost every purpose, being both strong and ornamental, and is imported into Britain for making musical instruments,

cabinet work, the backs of brushes, marqueterie floors, etc. The Jack is now much planted in many tropical countries of which it is not a native.

JACK-A-LANTERN. See IGNIS FATUUS.

JACKAL (corrupted from Sp. and Fr. *chacal*), the common name of a number of species and varieties of the dog genus, abounding in many parts of Asia and Africa, but not found in any of the other quarters of the globe, except that one of the kinds extends into Greece. They agree in all their most important characters with wolves and dogs, and many naturalists suppose that some of the domestic varieties of dog are of jacal parentage. The pupil of the eye is circular, as in the dog and wolf, although the form and tail are somewhat fox-like. The head is narrow, and the muzzle pointed. The ears are erect, and rather large. The tail is not so long as in foxes, but is almost equally bushy. All the jackals are of small size, as compared with wolves, seldom exceeding 15 in. in height at the shoulder. Their colors are buff and tawny, more or less grizzled; the tip of the tail is always dark. They make holes for themselves in the ground by burrowing, or take possession of such as already exist among rocks or ruins; and in these they spend the day, not venturing abroad till the dusk of evening. They hunt during the night in troops, and their howlings are described by all who have heard them as peculiarly horrible. The notion that the jackal is the *lion's provider*, and guides the royal beast to his prey, is one of the exploded fables of natural history, although it may have some foundation in the lion's occasionally following a troop of jackals in full cry, and appropriating "the lion's share." Jackals are not only ready to devour any animal which they can run down, but any carrion which they may meet with. They follow armies; they dig up the ill-buried dead; they rob hen-roosts and outhouses; but they are as omnivorous as domestic dogs, eating farinaceous or other vegetable food when it comes in their way; they are even said, like foxes, to enter vineyards, and devour the grapes. They have a very offensive smell, which, however, is said to diminish through domestication, and they are domesticated without difficulty. The name of COMMON JACKAL is sometimes given to the species (*canis aureus*) which is found in the western parts of Asia, and which is in general yellowish gray above, and whitish below, with yellow legs and thighs. But it is doubted if this animal was in ancient times plentiful, as it is now, in Syria and neighboring parts of Asia. It is thought not improbable that it may have followed the track of armies from the farther east. It is pretty certain that it has, in comparatively modern times, become common in parts of Asia more northern than it formerly inhabited. It is not improbable, however, that it is included under the name *fox* in the Hebrew Scriptures.

JACKASS, LAUGHING, *Dacelo gigantea*, a bird of the kingfisher family (*halcyonidæ*), and sometimes described in works on natural history as the great brown kingfisher. It agrees very nearly with the kingfishers in its form and characters, but differs from them in its habits, not frequenting waters, nor feeding on fish, but preying on beetles, reptiles, and small mammalia. It is about 18 in. long, and mostly of a brown color. It is a common bird in Australia, and has received its English name from the colonists, on account of the peculiar sounds which it utters. The natives call it *gogobera*, apparently in imitation of its cry. It is of great use in preventing the excessive multiplication of reptiles and other pests. Its bill is powerful enough to crush the heads of snakes. It is easily tamed, and is sometimes kept in gardens, from which it does not seek to escape.

JACK-BOOTS, tall boots of tough thick leather, reaching above the knee, and formerly worn by cavalry. In some instances, as an additional protection against sword-cuts, they were lined with thin plates of iron. The only regiments in the British service which still retain these handsome but cumbrous boots are the life guards and royal horse guards. See BOOTS.

JACKDAW (*Corvus monedula*), a species of crow, smaller than the rook and carrion crow, its utmost length being only about 14 inches. It is black, with dark-gray neck. It is a common British bird, and is plentiful also in some parts of continental Europe, Asia, and the n. of Africa. It is not found in America. It builds its nest in holes of cliffs, ruins, etc. It frequents towns and villages, often making its nest in a chimney by dropping down stick after stick till some of them become fixed in their oblique descent; and on these others are piled, affording a firm base for a nest of wool or other soft substance. The jackdaw lays from four to seven (usually five) bluish-white eggs, which are covered with dark-brown spots. Marvelous instances are recorded of the quantity of sticks employed to form a jackdaw's nest, in situations where an unusual height of pile was required. In 1842 a pair of jackdaws, in 17 days, made a pile 10 ft. high in the staircase of the bell-tower of Eton college. The jackdaw is a social bird. It is easily domesticated, and becomes very pert and familiar. It has considerable powers of mimicry, and even imitates the human voice.

JACK SCREW, a machine for raising heavy weights, chiefly buildings of various kinds, as houses and ships. It has various forms, the most powerful being a differential screw. The most convenient form, however, is a single screw and net, the inclined plane of the screw being as near a horizontal as is consistent with the thickness of the

thread and diameter of the screw. Other devices of the kind are employed, as the hydraulic jack (q.v.).

JACKSON, a co. in n.e. Alabama, bordering on Tennessee and intersected by the Tennessee river; 1100 sq.m.; pop. '80, 25,114. It is hilly, extensively covered with forests, and fertile. The staples are cotton, wheat, maize, grass, and pork. The Memphis and Charleston, and the Nashville and Chattanooga railroads, traverse it. There are several flour and saw mills and tanneries. Co. seat, Stevenson.

JACKSON, a co. in n.e. Arkansas; bounded n.w. by Black river, and traversed by White river and the Cairo and Fulton railroad; 600 sq.m.; pop. '80, 10,877. It is level, well wooded, and fertile. The staple products are cotton, maize, hay, and fruits. Co. seat, Jacksonport.

JACKSON, a co. in n. Florida, bordering on Alabama; bounded e. by the Chattahoochee and Appalachicola rivers, and drained by the Chipola; pop. '80, 14,372. The surface is level, and partly covered with pine forests. The soil is fertile, producing cotton, rice, sugar-cane, maize, and tobacco. Co. seat, Marianna.

JACKSON, a co. in n.e. Georgia; 450 sq.m.; pop. '80, 16,298. It is drained by two branches of the Oconee river, and intersected by the North-eastern railroad. It is hilly and well wooded. The staple products are cotton, maize, wheat, tobacco, and pork. Iron and granite abound. Co. seat, Jefferson.

JACKSON, a co. in s. Illinois; bounded s.w. by the Mississippi river, and drained by the Big Muddy; 580 sq.m.; pop. '80, 22,505. It is traversed by the Illinois Central, the Grand Tower and Carbondale, and the Cairo and St. Louis railroads. It is hilly and mostly covered with forest trees. The soil is fertile, producing wheat, maize, oats, tobacco, fruits, and pork. It has abundant coal-beds, salt-springs, and quarries of limestone, and several manufactories and mills. Co. seat, Murphysborough.

JACKSON, a co. in s. Indiana, 560 sq.m.; pop. '80, 23,050. It is drained by the e. fork of White river; bounded s. by the Muscatatuck, and traversed by the Ohio and Mississippi, and the Jeffersonville, Madison, and Indianapolis railroads. The surface is undulating, and much of it covered with forests. The soil is fertile. The staples are wheat, oats, maize, fruits, and pork. There are numerous carriage and woolen factories and flour and saw mills. Co. seat, Brownstown.

JACKSON, a co. in e. Iowa; bounded n.e. and e. by the Mississippi, and intersected by the Maquoketa; 628 sq.m.; pop. '80, 23,771. The surface is broken, well wooded, and the soil very fertile. The staples are wheat, oats, maize, hay, butter, and cattle. Mines of iron and lead are found. The co. is traversed by the Sabula, Ackley, and Dakota, and Iowa Midland railroads. The chief articles of manufacture are carriages, furniture, and saddlery. There are numerous flour and saw mills. Co. seat, Maquoketa.

JACKSON, a co. in n.e. Kansas; 658 sq.m.; pop. '80, 10,718. It is drained by Bills and Straight creeks. The Kansas Central, and the central Branch of the Union Pacific railroads intersect it. The surface is varied with prairie and woodland. The soil is fertile. The staples are maize, oats, wheat, hay, and live stock. This co. is part of the coal-field of Kansas. Co. seat, Holton.

JACKSON, a co. in s.e. central Kentucky; 300 sq.m.; pop. '80, 6,678. It is drained by the forks of Rock Castle river. The surface is hilly, and about half-covered with forests. The soil is fertile, producing maize and grass. Co. seat, McKee.

JACKSON, a parish in n. Louisiana; 730 sq.m.; pop. '80, 5,328. It is drained by Dugdemona river and some bayous. The surface is uneven, and covered extensively with forests. The soil is generally fertile. The staples are cotton, maize, sweet potatoes, and pork. Co. seat, Vernon

JACKSON, a co. in s. Michigan; drained by the Grand, Kalamazoo, and Raisin rivers; 720 sq.m.; pop. '80, 42,031. It is traversed by the Michigan Central and Grand River railroads, and by others connecting with these at Jackson. The surface is nearly level, and extensively covered with forests. The soil is a sandy but fertile loam. The staples are wheat, maize, oats, wool, and butter. The co. has iron, bituminous coal, limestone, and sandstone. There are numerous factories for carriages, agricultural implements, boots and shoes, and saddlery; also flour and saw mills. Co. seat, Jackson.

JACKSON, a co. in s. Minnesota, bordering on Iowa; 720 sq.m.; pop. '80, 4,806. It is intersected by the Des Moines and Chanyuska rivers. The surface is diversified with prairies and numerous lakes, the largest of which is Heron lake. The soil is fertile, producing wheat, oats, potatoes, and grass. The co. is traversed by the Sioux City and St. Paul railroad. Co. seat, Jackson.

JACKSON, a co. in s.e. Mississippi; bounded e. by Alabama, and intersected by the Pascagoula and Escatawpa rivers; 950 sq.m.; pop. '80, 7,607. It is level, sandy, and mostly covered with pines. The productions are chiefly rice, maize, and potatoes. It is crossed by the New Orleans, Mobile, and Texas railroad. Lumber is largely exported to New Orleans. Co. seat, Scranton.

JACKSON, a co. in w. Missouri; bounded w. by Kansas, n. by the Missouri river, and drained by Big Blue and Little Blue rivers; 650 sq.m.; pop. '80, 82,364. It has a fertile limestone soil, and an uneven surfaee partly covered with forests. The Missouri Pacific railroad crosses it, and other important railroads have their terminus at Kansas City. The staple products are wheat, oats, maize, grass, and live stoek. Limestone is abundant. There are many manufactories for carriages, furniture, saddlery, clothing, cigars, etc., and some flour and saw mills. This co. ranks seeond in the state for population and wealth. Co. seat, Independence.

JACKSON, a co. in s.w. North Carolina, bordering on South Carolina; 600 sq.m.; pop. '80, 7,343. It is drained by the Tuckasegee river. It is mountainous, and to a great extent covered with forests. The soil is fertile. The staples are maize, wool, grass, and pork. Iron, gold, and marble are found. Co. seat, Webster.

JACKSON, a co. in s. Ohio; drained by the Little Scioto river and Symmes creek; 400 sq.m.; pop. '80, 23,686. It is hilly and well timbered. The soil is generally fertile, producing wheat, oats, maize, and hay. Iron and bituminous coal are abundant, and beds of limestone are numerous. There are several manufactories, flour and saw mills. It is traversed by the Marietta and Cincinnati railroad. Co. seat, Jackson.

JACKSON, a co. in s.w. Oregon; bounded s. by California; 3,000 sq.m.; pop. '80, 8,154. It is traversed by the Cascade and other mountain ranges. The western part is drained by Rogue river, and is fertile; but much of the eastern is uncultivated. The surface is uneven, and much of it covered with forests. The climate is changeable. Gold and iron have been found. The staples are wheat, barley, oats, maize, and live-stock. Co. seat, Jacksonville.

JACKSON, a co. of middle Tennessee; 300 sq.m.; pop. '80, 12,008. The northern

JACKSON, a co. of middle Tennessee; 300 sq.m.; pop. '70, 12,583. The northern part originally included Clay co., which now separates it from Kentucky. The surface is irregular and covered extensively with forests. The soil is fertile, producing wheat, maize, tobacco, and grass. Co. seat, Gainesborough.

JACKSON, a co. in s. Texas; 800 sq.m.; pop. '80, 2,723. It is drained by the Lavaca and Navidad rivers. The s.w. part borders on Lavaca bay. The surfaee is prairie and woodland. The soil is generally fertile. The staples are cotton, maize, grass, and cattle. Co. seat, Texana.

JACKSON, a co. in w. West Virginia, bounded n.w. by the Ohio river; 440 sq.m.; pop. '80, 16,318. It is hilly, and a large part is covered with forests. The soil is generally fertile, producing maize, wheat, oats, and tobacco. Limestone is found. Co. seat, Jackson Court-house, sometimes called Ripley.

JACKSON, a co. in w. Wisconsin; 1000 sq.m.; pop. '80, 13,285. It is interseeted by Black river, and in part drained by Fox river and some creeks. The surfaee is irregular and well wooded. The soil is generally good. The staples are wheat, oats, maize, grass, and lumber. The West Wisconsin railroad crosses the county.

JACKSON, a flourishing city in the state of Michigan, United States, is situated on the left bank of the Grand river, 76 m. w. of Detroit, and 35 m. s. of Lansing, at the intersection of six railways. There are manufactures of chemicals, bricks, agricultural implements, furniture, and wagons; foundries, machine-shops, rolling-mills, breweries, flour-mills, etc. There is a flourishing general trade. Within the city limits there are two mines of bituminous coal; that material occurs also in the vicinity. Pop. '80, 42,031.

JACKSON (*ante*), the co. seat of Jackson eo., Michigan, on the Michigan Central railroad, 94 m. s.e. of Grand Rapids. It is a city of great commercial activity, and is in a prosperous farming region. Pop. '80, 16,121. It was incorporated 1857, and has 5 banks, 16 churches, 2 large union and several graded public schools, gas-works, and Holly water-works. Among the public buildings are the state prison, built of stone, 500 ft. long, inclosing 8 acres; the finest passenger station in the state, built by the Michigan railroad eompany, and the principal railroad machine shops. There is a business eollege, and a young men's library of 2,500 vols.

JACKSON, capital of the state of Mississippi, United States, is situated on a plain on the right bank of the Pearl river, which becomes navigable here, 40 m. e. of Vicksburg, and about 180 m. n. of New Orleans by railway. Being the capital, it is the seat of several important state institutions, as the lunatic asylum, institutions for the deaf and dumb, and the prison. Here, in average years, from 30,000 to 40,000 bales of cotton are shipped annually. Pop. '70, 4,234.

JACKSON (*ante*), the capital of Mississippi, at the junetion of the New Orleans, Jackson, and Great Northern, and the Vicksburg and Meridian railroads; pop. 1880, 5,204. It has a large trade in cotton. It has 8 churches, 3 banks, a high sehool and private schools, a state library of 15,000 vols., 2 hotels, a city hall, street cars, a fire department; 2 iron foundries, sash, door and blind faetories. The chief public buildings are the state-house, penitentiary and institutions for deaf-mutes, the blind, and insane. In the war of the rebellion the city was oecupied by the federal troops, and much of it destroyed, but it has been rebuilt, and is now prosperous.

JACKSON, a city of Tenn., co. seat of Madison co.; pop. '80, about 5,377. It is on the s. fork of Forked Deer river, and at the junction of the Mobile and Ohio with the New Orleans, St. Louis and Chicago railroads. It is 90 m. n.e. of Memphis, and 107 s.e. of Cairo, Ill. It has 13 churches, a court-house, a national bank, 5 hotels, an opera-house, 5 newspapers, gas-works, planing and flour mills, soda-water manufactories, and the machine shops of the railroad companies. Here are West Tennessee college, the South-western university, founded 1874, several seminaries for girls, and some public schools. Jackson is in a fertile region, and has a growing trade. The chief article of export is cotton.

JACKSON, Abraham Reeves, b. Philadelphia, 1827; received degree of doctor of medicine from the Pennsylvania medical college in 1848; practiced in Stroudsburg, Penn., and Chicago, Ill. In 1872 he was elected professor in the Rush medical college. He was an honorary member of several medical societies, and author of numerous medical works.

JACKSON, Andrew, Gen., and seventh president of the United States of America, was b. at Waxhaw settlement, S. C., Mar. 15, 1767. His father, who was a Scotchman by birth, emigrated to America in 1765, and soon afterward died, leaving to his widow a half-cleared farm in a new settlement, with no negroes to assist in its cultivation. When Jackson grew up he was sent to study for the church, but on the breaking out of the American revolution he and his brothers were summoned to the field, and the elder lost his life at Stono Ferry. Andrew, though but 13 years old, fought with his remaining brother under Sumter, and remained with the army until the end of the war. The life of the camp had ruined him for the clerical office, so in 1784 he commenced the study of the law, and in 1787 was appointed solicitor for the western district of South Carolina, now the state of Tennessee. This frontier settlement had for its neighbors several powerful tribes of Indians, against whom Jackson fought with such success as to get from them the complimentary titles of "Sharp Knife" and "Pointed Arrow." In 1796 he was a member of the convention which modeled the constitution and organized the state of Tennessee, and was elected to the legislature as representative, and then as senator, and appointed judge of the supreme court (an office he soon resigned), and maj.gen. of the state militia. In 1813, at an outbreak of hostilities with the Creek Indians, he raised a volunteer force of 2,000 or 3,000 men, and defeated them. When destitute of supplies he is said to have set an example of endurance by feeding on hickory-nuts, and hence, according to some, to have acquired the popular sobriquet of "Old Hickory." Jackson's final victory (Mar. 27, 1814) at the Horseshoe peninsula, in the Tallahoosa, completely broke the power of the Indian race in North America. In consequence of his skill and energy in Indian warfare he was appointed a maj.gen. of the army of the United States; and in the contemporaneous war with England had command of the forces which captured Pensacola, and defended New Orleans (q.v.) against the attack of the British under gen. Packenham, Dec., 1814. The result of this action, so flattering to the pride of Americans, gave gen. Jackson a great and enduring popularity. After Spain had ceded Florida to the United States he was made gov. of the territory, and subsequently was chosen U. S. senator from Tennessee. In 1824 he received the highest vote of four candidates for the presidency of the United States, but by the influence of Mr. Clay, John Quincy Adams was elected by the house of representatives. He was, however, in spite of bitter and violent opposition, elected by the democratic party in 1828, and in 1832 re-elected by a still more overwhelming majority. His administration was marked by singular firmness. He vetoed important measures against large majorities, and after a long struggle destroyed the bank of the United States, and took the first steps toward a specie currency and independent treasury. But he manifested too much, perhaps, of a partisan spirit in removing nearly all his political opponents from office, and appointing his supporters—an example followed by his successors of both parties, and which has led to wide corruption. His administration, as a whole, was successful, and he retired with undiminished popularity, after witnessing the election of his favorite, president Van Buren. He died at his farm of the Hermitage, near Nashville, June 8, 1845.

JACKSON, Andrew, ll.d. (*ante*); 1767–1845; b. N. C.; seventh president of the United States. In boyhood he was far more fond of sports than of books, but these sports were soon exchanged for serious work. Though but eight years old when the battle of Lexington occurred, before the war was over he took an active part on the patriot side. In 1781 he and his brother Robert were taken prisoners. The English commander directed Andrew to brush his boots, but the spirited boy indignantly refused, whereupon the Englishman struck him with his sword, inflicting a wound upon his arm and another upon his head; at the same time Robert was knocked down. Andrew was put in prison at Camden, S. C., where he saw the defeat of gen. Greene at Hobkirk hill. The mother procured the exchange of the boy soldiers and took them to her home in Waxhaw, where Robert died from small-pox, and for many months Andrew was very ill. The patriotic mother left her home to nurse Americans in prison at Charleston, and there died of fever. Andrew was alone in the world, and without means; but he went to work for a saddle-maker, adding the incongruous employment of teaching school. His next step was to study law at Salisbury, N. C., but the books of Blackstone were

not so attractive to his mind as a good horse-race or other exhilarating sport. While yet under twenty he was admitted to the bar as attorney and counselor, and in 1788 was appointed public prosecutor in the region now forming the state of Tennessee. It was a new and wild country, and in the prosecution of his duties Jackson had to travel long distances, often at the risk of death from the Indians. Of such traveling, chiefly on horseback, he had about 1000 m. every year. In 1791 he married Rachel Robards, a daughter of John Donelson, one of the pioneer settlers of Tennessee. The marriage was the cause of considerable severe comment from the fact that the woman was divorced under peculiar circumstances. She had been the wife of Lewis Robards, a Kentuckian. She was boarding with Mrs. Donelson, who was then a widow, when Jackson took rooms in the same house. Robards soon afterwards applied to the legislature for an act looking to a divorce, charging his wife with undue familiarity with the young lawyer. The bill was passed, and Jackson supposed it to be a full divorce; so the pair married two years before the divorce provided for by the legislative act (which was to be decreed by a jury) took effect. They married over again; but the union was not happy, and its effects were felt by Jackson even while he was in the executive chair.

When Tennessee was organized as a territory Jackson was made district attorney. In 1796 he was a member of the convention to frame a state constitution, and was on the committee to draft that document. In the same year he was chosen to congress, taking his seat in December. His political sympathies were with Jefferson, and he was one of the twelve who opposed the offering of an address to Washington in answer to his last message to congress, on the ground that he could not approve of all the doings of the administration. Jackson's first work in the house of representatives was a speech in favor of remuneration for services against the Indians. He voted for a tax on slaves, and against furnishing the president's house unless very plainly. Except that he favored the building of three vessels of war, and opposed the purchase of peace from the Algerine pirates, he did nothing more in that congress. But his course pleased his constituents, and he was sent to the U. S. senate in 1797. In that body he was perfectly dumb, neither making a speech nor casting a vote. In April, 1798, he resigned, and was chosen a judge of the supreme court of Tennessee, in which capacity he had to travel over the state on a salary of $600 a year. At this time he came near having his first passage-at-arms with gov. Sevier, whom he suspected of being concerned in land frauds. A duel was expected, but friends interfered and prevented it. In 1798 a failure in Philadelphia embarrassed Jackson financially; but he resigned his judicial office, sold a large amount of property, and cleared himself from debt. In 1804 he removed to a log-house, afterwards known as "the Hermitage," and engaged largely in the raising of corn, cotton, wheat, horses, and cattle. He was the head of a trading firm, and was doing a large business, when the firm failed in consequence of acts done without Jackson's knowledge. The first of his duels was with Charles Dickinson, who had used objectionable language respecting Mrs. Jackson. They fought at eight paces; Jackson had a rib broken, and Dickinson was killed.

In 1805 Aaron Burr appeared in the southwest and easily enlisted Jackson in his plans for war with Spain, the seizure of Mexico, etc. A ball was given in Burr's honor, and Jackson, in full military costume, introduced the guest to his hosts. In Nov. Jackson supplied Burr with boats and provisions; but a few days later, having cause to suspect the adventurer, he ordered that no further dealings should be had with him, at the same time writing to Burr and demanding the truth. He also wrote to gov. Claiborne of Orleans territory (now Louisiana) and to president Jefferson. Yet he was Burr's friend, and during the trial of the latter at Richmond, although summoned as a witness, he was zealous in his defense. Jackson favored the nomination of Monroe for president; but for some years he avoided politics, living quietly at the Hermitage and attending solely to the raising of crops and cattle.

The declaration of war against Great Britain in 1812 brought to the hero of that war his opportunity. As soon as he heard the news he offered his own services and the co-operation of 2,500 militia under his control. The proposition was gladly accepted, and in Oct. the governor of Tennessee was requested to forward 1500 men to New Orleans. Jackson assembled the men at Nashville, and 2,000 infantry and cavalry were equipped. Early in Dec. the infantry were sent down the river in boats, while the cavalry made their way overland. The forces reassembled at Natchez, where they remained under orders from Feb. 15. Near the last of Mar. orders came from Washington to dismiss the men, but Jackson conducted them back to Tennessee before obeying the order. It is said that in consequence of his courage and endurance at this time his men gave him the *soubriquet* of "Hickory," which was the origin of the "Old Hickory" of later years. The men were dismissed in May, after another tender of service to which Jackson received no answer. He had assumed responsibility for the transportation of his men, but the government permitted his paper to go to protest, and he was on the verge of financial wreck, when a friend, Thomas Hart Benton, afterwards the great Missouri senator, came to his rescue, and, by appealing "from the justice to the fears" of the party in power, finally secured justice. The next incident in the stirring life of Jackson was the Benton fracas. A friend of Jackson named Carroll had a quarrel with and sent a challenge to Jesse Benton, a brother of Thomas H.; Jackson became Carroll's second, and for a time put off the contest. The challenged party sent

to his brother in Washington an account of the affair, which was intended to, or at least did, create prejudice against Jackson in the mind of his especial friend. A fiery correspondence followed between Thomas H. Benton and Jackson, and in the course of oral comment Benton used some of the strongest language of which he was master, all of which was made known to Jackson, who was wrought up to the highest pitch of passion. He declared that he would horsewhip Benton on sight. Early in Sept. Jackson and col. Coffee met the two Bentons in the street at Nashville. Jackson called to Benton to defend himself, and made a movement towards him, while Benton tried to get hold of a pistol. Jackson got his pistol soonest and took aim, his antagonist retreating and he following to the rear door of a hotel, where Jesse Benton fired and put two or more balls into Jackson's left shoulder. Jackson fell; Coffee fired, but missed Benton; then turned upon Thomas H. Benton, when the latter fell down a flight of steps. A nephew of Mrs. Jackson, named Hayes, then mingled in the fray, making a desperate attack upon Jesse with sword-cane and dagger, finally throwing him down and wounding him in a number of places. The interference of an outsider saved Jesse's life, and the fight ended. The physicians decided that Jackson's arm should be taken off, but he would not listen to them, and his resolution saved that member of his body to hold the bridle in many a more honorable encounter.

Ever since the earliest attempts to remove the Georgia Indians from their territory there had been intermittent wars. Emboldened by the war with England, the Creeks in 1813 made further trouble and committed many outrages, the chief of which was the massacre at Fort Mimms, Aug. 30. Intense excitement followed, and the whole southwest was aroused. The Tennessee legislature called for volunteers, and resolved to exterminate the troublesome tribe. Jackson was in bed, nursing his shattered shoulder, but he dictated addresses and was in spirit in the field. Although his wound still caused intense pain, he joined his division Oct. 7, and on the 11th they marched, and for 32 m. at the rate of five and one-third miles an hour, to overtake the Indians, which, however, they failed to do. Nov. 3 col. Coffee defeated the Indians, and on the 9th Jackson gave them a crushing blow at Talladega. But the commissariat was badly managed, and Jackson's men were almost in mutiny, from which cause these victories were of much less consequence than they would have been under favorable conditions. In Jan., 1814, Jackson, with less than 1000 men, invaded the Indian territory, winning two important victories before the close of the month. In both fights his skill and courage were conspicuous. In Feb. he had a new force of 5,000 men, with whom he followed the Indians, who had made their final stand at Tohopeka on the Tallapoosa, on a small peninsula called the Horseshoe. The position was strong, but the Indian force was weak; Jackson captured the place Mar. 27, and of the 900 Indians 750 were killed, the white loss being 201. This defeat was the end of wars with the Creeks, and thereafter the Indians of Georgia and Alabama submitted to fate and removed to the territory set apart for them w. of the Mississippi. A few months later Jackson and col. Hawkins made with the Indians the treaty of fort Jackson, on which occasion the leading chiefs desired to present Jackson with a tract of nearly 6,000 acres of land, but congress would not permit him to accept.

May 31, 1814, Jackson was made a maj.gen. of the regular army, and was looked upon as the leader in the s. w. The British were preparing for a formidable attack upon Mobile, and thither Jackson went in July. The enemy were making free use of the Spanish port of Pensacola, where they arranged two expeditions against the United States, and at the same time stirred up the Indians of Florida (then belonging to Spain) to hostilities against the white settlements in Georgia. The Spaniards lacked the disposition even if they had the power to stop this abuse, as was shown when the English commander made his head-quarters in the mansion of the Spanish governor. Jackson determined to take possession of Pensacola, and wrote to Washington for permission, but it was six months before the answer came. He wrote a protest to the Spanish governor, to which no attention was paid. He then "took the responsibility," called upon his Tennessee veterans, and prepared to seize the Spanish port. He put a force into a small unfinished fort (Bowyer) on Mobile bay, under command of maj. Lawrence. This place the English attacked by sea Sept. 15, but they were driven off, losing one of their vessels and 72 men. At this time occurred an event for which Jackson received more censure than from all other acts of his life. There had been a mutiny among the Tennessee troops whereby Coffee's reinforcements had been delayed. Jackson hung six of the offenders, thereby ending mutiny in armies under his command. At length he was ready, and marched upon Pensacola with 3,000 men. Negotiations were proposed, but he was not there to talk; he took the place Nov. 6; the English blew up the fort that defended the harbor, went aboard their ships, and left the bay. Two days later he was again in Mobile, expecting an attack from the English. There being no prospect of such attack, he sent the greater part of his troops to New Orleans, and arrived there himself Dec. 2, 1814. The place had no defenses worth notice, and but for their proverbial slowness the English might have taken it almost without effort. Jackson knew they were coming, and made preparations for their reception. On the 14th the English seized five American gunboats and a schooner, clearing the course up the river to New Orleans; but they did not avail themselves of the advantage. On the 15th Jackson, who had already called out the entire militia, proclaimed martial law.

He had a motley army, comprising a few regulars, militia from the neighboring states, privateers from Barataria, and one battalion of negroes. On the 16th the British advances landed, and came within 9 m. of the city on the morning of the 23d. Learning the facts early in the afternoon, Jackson hastily gathered a force of 2,130 (of whom only 1800 were in the engagement), and with the assistance of a solitary schooner made an attack, the result of which, after a very sharp conflict, was decidedly to the advantage of the Americans. The advance upon the city was checked, and, had not large additions been made to the British force during the night, there would have been a substantial American victory. It is generally believed that this check, and the remarkable caution with which the British moved, saved New Orleans from capture. After that battle Jackson retired to a canal about 4 m. from the city, where he prepared for defense from whatever quarter an attack might come. Packenham arrived on Christmas day and made many changes in the disposition of the British troops. On the 28th he made an attack, but was repulsed. He made another effort on New Year's day, chiefly with artillery, and this was not only a repulse but a defeat. These results were due to Jackson's incessant activity, and the spirit which he had aroused among his men. He greatly annoyed the enemy by sudden attacks in the night, and by other means kept them in constant alarm. Jan. 12, 2,250 Kentuckians came to Jackson, but were of little use as their arms were delayed on the river. On the 6th the English gathered all their forces, including marines and seamen, the number being about 14,000, though English authorities declared that 8,000 was the right count, while they absurdly insisted that the Americans had 25,000. (Jackson had about 4,000 men.) The American line was on the left bank of the river in a very strong position; it was about 1700 yards long, and manned by 12 guns and 3,200 men. The handling of the guns under lieut. Armstrong (afterwards gen.) was most effective. In the first assault upon Jackson's line the British commander Packenham was killed, and another gen. mortally wounded. A second assault produced no impression, the well-directed fire of the Americans being too terrible to face. A battery near the river was captured by the English after the loss of three-fourths of the assailants, but it was quickly abandoned. The famous 93d Highlanders, who had won distinction in many parts of the world, lost half their number. After losing heavily and seeing no prospects of success, gen. Lambert, who had succeeded Packenham, proposed an armistice. But while the British had been so badly beaten before Jackson's line they had gained decided success on the other side of the river, from which position they might be troublesome. In granting the armistice, therefore, Jackson required that it should not take effect on the other side, nor should either party send reinforcements there. This was agreed to, and in doing so the English abandoned their only advantage. The armistice ended the attempt to capture New Orleans and control the great river. The British retired with a loss of about 2,000 in all; the loss on the other side was seven killed and six wounded. The battle of New Orleans, which crowned Jackson with fame, was fought Sunday, Jan. 8, 1815, some weeks after the signing of the treaty of peace at Ghent. The anniversary of the day was for many years celebrated with enthusiasm surpassed only by the rejoicings on July 4. Following the war there were many legal troubles in which Jackson was involved, the most notable of which was a fine of $1000 for contempt of court, the contempt being the arrest of judge Hall during the time of martial law. Jackson refused pecuniary assistance and paid the fine. Nearly 30 years afterwards, and only a year before his death, congress refunded the fine with interest.

In April, 1815, Jackson was appointed commander-in-chief of the southern division, and congress voted thanks for his services. His next active work was in the Seminole Indian war, in the course of which occurred another of his acts which created no little excitement. At the Spanish fort of St. Marks, of which he had taken possession, was one Arbuthnot, a Scotchman, whom he arrested; and at Suwanee he arrested a native of the Bahamas named Ambrister. These men (British subjects) were tried by court-martial, and declared guilty of inciting the Indians to war and supplying them with arms, and the sentence of death was immediately executed. At the same time Jackson hung two Indian chiefs, and then seized Pensacola in spite of the remonstrance of the Spaniards. These proceedings created intense excitement in England; but after much angry correspondence there was a peaceable settlement. In congress Jackson's conduct was very generally condemned, but all attempts to pass a vote of censure failed. As for himself, at this time, he was in constant and towering passion. He believed that his action was in accordance with the desires of the administration, and the criticisms so freely made were as goads to his hot temper, carrying him so far that he threatened to cut off the ears of certain free-speaking senators. In 1819 Jackson went as far north as New York, and was well received, but with little cordiality. On the cession of Florida to the United States he was appointed governor, and during his brief term of office had some serious difficulties in consequence of the arrest of a judge for issuing a writ of *habeas corpus*. Efforts in congress to pass censure for this act were not successful. In 1822 he was offered but refused to accept the Spanish mission.

The Seminole war closed Jackson's military career, and with no inclination of his own he was again taken into political life. In 1823 the legislature of Tennessee elected him to the U. S. senate, and at the same time nominated him for president. (At that time all nominations for the chief executive office were made by caucuses of state

legislatures.) At the election the next year there were four candidates who received electoral votes as follows. John Quincy Adams 84, Wm. H. Crawford 41, Henry Clay 37, and Jackson 99. No one having a majority the house of representatives elected Adams, and Jackson retired to private life. But four years afterwards he was supported by all the opponents of the administration, and elected by an immense majority—the vote being Jackson 178, Adams 83. The contest was one of the most personal and bitter in American political history. Mrs. Jackson died almost as soon as she knew of her husband's election.

Jackson's eight years' administration of the government was neither better nor worse than had preceded. The chief innovation was in the general sweeping of men out of office on account of their party opinions. Up to his time there had been few removals on such grounds; but he adopted gov. Marcy's doctrine that "to the victors belong the spoil of the vanquished," and it may be added that every party from that day to this has followed in his footsteps. The leading facts of Jackson's administration were the scandal concerning Mrs. Eaton, whereby the cabinet was broken up; the veto of the U. S. bank charter; the removal of the deposits of public money from that bank; and particularly the prompt and complete crushing of the contemplated secession of South Carolina in 1832. This movement was started in opposition to a high tariff, and Jackson himself was opposed to such a tariff; but he gave the South Carolinians to know, in language not to be misunderstood, that while the laws remained unrepealed they should be enforced at any hazard. Before any serious acts had occurred the matter was settled through the influence of Henry Clay and others. During his second term Jackson was engaged in the "bank war." He ordered the secretary of the treasury to stop making deposits of public money in the U. S. bank and its branches. The cabinet were not favorable to such a policy, and Jackson put William J. Duane at the head of the treasury, but as he declined to do the required service he was displaced and Roger B. Taney was appointed. Taney obeyed Jackson's order, and in retaliation the senate refused to confirm his nomination as secretary. (He was subsequently made chief-justice of the U. S. supreme court.) Feeling ran so high in this bank war that the senate passed a resolution of censure on the president, a proceeding unheard of till then. In 1837 this resolution was by vote expunged from the record. The "bank war" closed in 1836–37; the old bank was not re-chartered; and after some time the independent treasury or "sub-treasury" was invented to take its place as a depository for public money. During Jackson's terms the national debt was entirely paid off; the Indians were removed from Georgia, and nearly all of them from Florida, although enough were left to make the second Seminole war; and two states, Arkansas and Michigan, were admitted to the union. The chief disturbing elements were the question of slavery and the great financial panic, which was just beginning when he left the chair in Mar., 1837. On quitting office he published a farewell address and retired to the Hermitage, where he passed the remainder of his life, always, however, taking a deep interest in public affairs. Dropsy was the direct cause of his death; but he had through life been suffering from various diseases, and to these circumstances his friends ascribed much of his irritability of temper. His honesty in intent and act was never doubted; with all his harshness he was charitable; and in his later years made a free and open profession of the Christian faith, which he had always intellectually accepted.

JACKSON, Charles, ll.d.; 1775–1855; b. Mass.; graduated at Harvard college, 1793; studied law with chief-justice Parsons, and commencing practice in 1796 at Newburyport, rose to a high rank at the bar. In 1803 he removed to Boston, where, associated with judge Hubbard, he had the most lucrative practice in the state, and was among the most distinguished of the profession. He was judge of the Massachusetts supreme court, 1813–24; a member of the state constitutional convention in 1820; appointed one of the commissioners to revise the state laws in 1833, and in 1828 published a *Treatise on the Pleadings and Practice in Real Actions*, a standard work on the law of property.

JACKSON, Charles Thomas; b. Mass., 1805; studied medicine in Boston, and received his medical degree from Harvard college in 1829. In 1827–29, in company with Francis Alger of Boston, he made a mineralogical and geological survey of Nova Scotia, an account of which is contained in *Memoirs of the Am. Academy of Arts and Sciences.* He visited Europe in 1829, spending three years in study in Paris. In 1831 he made a pedestrian tour through central Europe. He was at Vienna during the prevalence of cholera, and assisted in the dissection of 200 bodies of the victims. In 1833 he began the practice of medicine in Boston, but relinquishing it, devoted himself to chemistry, mineralogy, and geology. In 1836 he was state geologist of Maine; in 1839, of Rhode Island; and in 1840, of New Hampshire. In 1837 he had a controversy with prof. Morse, claiming the invention of the telegraph. In 1844 he explored the wilderness on the southern shore of lake Superior, and (1847–49) was U. S. surveyor of mineral lands in Michigan. Dr. Jackson claimed to be the discoverer of anæsthetics, but his claims were disputed by Dr. W. T. G. Morton, and Dr. Horace Wells, which gave rise to a protracted controversy. A memorial signed by 143 physicians of Boston and vicinity, claiming for him the exclusive discovery, was presented in 1852 to congress. A com-

mittee of the French academy of sciences, about the same time investigated the matter, and decreed a prize to both Jackson and Morton. Dr. Jackson has received many honors from foreign societies and governments. He has contributed valuable articles to the *American Journal of Science and Arts*, to the *Comptes Rendus*, and to the *Bulletin de la Société Géologicale de France.* His geological reports and chemical reports for the U. S. patent office were also published, and a *Manual of Etherization*, 1861.

JACKSON, Helen Fiske (Hunt). See page 883.

JACKSON, Henry Rootes; b. Georgia, 1820; admitted to the bar in 1840; was several years U. S. district attorney for the state; was col. of a regiment in the Mexican war in 1846; judge of the circuit court, 1849–53, when he was appointed *chargé d' affaires* at Vienna, remaining there as minister resident 1854–58. After the secession of Georgia he accepted the office of confederate judge for the state, which he resigned, and was made a brig.gen. in the rebel army. He was under Hood in Tennessee; captured at the battle of Nashville in 1864; taken as a prisoner of war to Johnson's island, thence to fort Warren, where he remained till the close of the war. In his early life he contributed to literary periodicals, and in 1851 published *Tallulah, and other Poems.*

JACKSON, Howell Edmunds. See page 884.

JACKSON, Jacob Beeson. See page 884.

JACKSON, James; 1757–1806; b. Devonshire, England; removed 1772 to Georgia, and in 1776 took an active part in repelling the British from Savannah; in 1778 was made brigade maj. of the Georgia militia, and when Savannah, which he had defended, fell, he fled to South Carolina, and joined gen. Moultrie; in 1781 he was at the battle of Cowpens as brigade maj. to gen. Pickens. When Augusta was besieged he was put in command of the garrison after the expulsion of the British. After the war the Georgia legislature presented him a house and lot. In 1789 he was chosen governor, but declined; was a member of the first congress under the new constitution in 1789; was U. S. senator 1793–96; took part in framing the constitution of Georgia in 1798, and was governor 1798–1801. While in congress he opposed the bill for the suppression of the slave trade.

JACKSON, James, ll.d.; 1777–1867; b. Mass.; graduated at Harvard college, 1796, studied medicine with Dr. Holyoke of Salem, and in London. Returning, he began practice in Boston in 1800. He was the first physician of the general hospital in Boston, which, with Dr. Warren, he established. In 1810 he was chosen professor of clinical medicine in Harvard university, and in 1812 professor of theory and practice. In 1835 he was made professor emeritus. He was several times elected president of the Mass. medical society. His principal productions are: *On the Brunonian System*, 1809; *Remarks on the Medical Effects of Dentition*, 1812; various articles in the *Transactions of the Mass. Medical Society*; *Syllabus of Lectures*, 1816; *Eulogy on Dr. John Warren*, 1815; *Text Book of Lectures*, 1825–27; *Memoir of his Son, James Jackson, Jr.*, 1835; *Letters to a Young Physician*, 1855. He contributed many articles to the Boston medical and surgical journals.

JACKSON, John, 1686–1763; b. England; graduated at Cambridge; was rector of Rassington and master of Wigton hospital. He afterwards published many treatises advocating Arian or Unitarian tenets, and wrote against Collins and Tindal. In 1752 he published a useful work on chronological antiquities.

JACKSON, John, 1778–1831; b. England; an eminent portrait painter. The son of a poor tailor, he attracted the notice of lord Mulgrave and sir George Beaumont by the great taste for drawing which he displayed; and leaving his father, to whom he was apprenticed, he removed to London, and through their favor studied at the royal academy. He soon rose to distinction as a portrait painter, and in 1817 became a royal academician. Visiting Italy in 1819 he was made a member of the academy of St. Luke at Rome. He is considered one of the ablest pupils of the Reynolds school. Though he painted with remarkable rapidity, his pictures show always a careful finish. He was a man of sincere piety, rejoiced in the success of other artists, and was ready to aid promising youth in their struggles with poverty.

JACKSON, John, d.d., 1811–85; b. London: graduated with high honor at Oxford, 1883; was rector of St. James, Piccadilly, in 1846; chaplain of the queen in 1847; canon of Bristol in 1852; bishop of Lincoln in 1853. He was preacher before the univ. of Oxford, 1845–66; in 1853 delivered the Boyle lecture; was appointed bishop of London, 1869.

JACKSON, Jonathan, 1743–1810; b. Boston; graduated at Harvard college, 1761; was a wealthy merchant at Newburyport; a member of the provincial congress in 1775; a representative in 1777; a member of the old congress in 1782; a state senator in 1789; marshal of the district of Massachusetts, state treasurer, and president of the state bank. He published *Thoughts on the Political Situation of the United States.*

JACKSON, Patrick Tracy, 1780–1847; b. Mass.; brother of Dr. James Jackson; was apprenticed at the age of 18 to a merchant, and engaged afterwards in Boston in the Indian trade, in which he acquired a fortune. With his brother-in-law, Francis C. Lowell of Boston, he engaged in the cotton manufacture, and after several experiments succeeded in producing a model from which a power-loom was constructed in 1812 by Paul Moody. They built their first mill in 1813 at Waltham, the first that converted the raw cotton into cloth. In 1821 he purchased land on the Merrimack river, on which the Merrimack Manufacturing company erected a number of mills under his auspices.

This was the site of the present city of Lowell. In 1830 he obtained a charter for a railroad from Lowell to Boston, which, under his direction, was completed in 1835. Having experienced severe pecuniary reverses in 1837, he took charge of the Locks and Canal Co. of Lowell, and afterwards was agent of the Great Falls Co. at Somersworth, N. H. He took a deep interest in the moral and intellectual improvement of his operatives.

JACKSON, SAMUEL, 1787–1872; b. Philadelphia; was a distinguished physician, lecturer and writer. He was professor of the institutes of medicine, 1835–63, in the university of Pennsylvania. His most important work is the *Principles of Medicine*, 1832. He published also *Discourse commemorative of Nathaniel Chapman*, 1854; introduction to Morris's translation of *Lehman's Chemical Physiology*, 1856; *Occasional Essays*, 1872.

JACKSON, SHELDON, D.D. See page 884.

JACKSON, THOMAS, D.D., 1579–1640; b. England; graduated at Oxford, 1595; was president of Corpus Christi college in 1630, prebendary of Winchester in 1835, and dean of Peterborough in 1638. He was one of the most learned men of the 17th c. in theology, metaphysics, languages, the arts and sciences. He published a commentary on the apostles' creed, sermons and theological treatises. His complete works in 12 vols. were republished at Oxford in 1844. His writings are distinguished for elegance and dignity of style. Southey ranks him among the best of English divines.

JACKSON, THOMAS, D.D., 1783–1873; b. England; was for 20 years an itinerant Wesleyan preacher, and after editing the Wesleyan magazine by appointment of the conference for 19 years, became tutor in the Richmond Wesleyan theological institution. Of his numerous published works the most important are *The Institutions of Christianity*, 3 vols.; *The Centenary of Methodism; Life of Charles Wesley, and Contemporary Events*, 2 vols., 1841; *Providence of God Viewed in the Light of Scripture*, 1862; *Curiosities of Pulpit Literature*, 1868.

JACKSON, THOMAS JONATHAN, an American confederate gen., better known as "Stonewall Jackson," was b. in Virginia in 1824. In 1842 he entered the military academy at West Point as a cadet, and was brevetted second lieut. in the 1st corps of U. S. artillery in 1846. He was attached to Magruder's battery in the Mexican war, and was brevetted capt. for his gallant conduct in the battles of Contreras and Cherubusco. He retired from the army in 1852, and became professor of mathematics and military science in the university of Virginia. At the outbreak of the war of secession he was appointed a brig.gen. in the confederate army. His *nom de guerre* of "Stonewall" was occasioned by the firmness of his brigade at the battle of Bull run, July 21, 1861. He defeated the northern forces at Ball's bluff, and outgeneraled and defeated the federal commanders in the Virginia campaign of 1862, after which he led the invasion of Maryland, and captured Harper's Ferry. He died of wounds received from his own men at Chancellorville, May 9, 1863.

JACKSON, THOMAS JONATHAN (*ante*), 1824–63; b. at Clarksburg, Va., the third of four children of Jonathan Jackson, a lawyer, and his wife Julia Neale. The father died when Thomas was but three years old, and the mother, with three children, was left without means of support. She taught school and worked at sewing. After three years of widowhood she married a lawyer named Woodson. He was poor, and the children were parceled out among their uncles and aunts. Fourteen months after her second marriage Mrs. Woodson died. Thomas went to live with Cummins Jackson, an uncle, who acted the part of a father to him, and there the boy grew up to the age required for entrance to the national military academy, to which he was appointed in 1842. His appearance when he entered the academy is thus described: "A slender lad, who walked rapidly, with his head bent forward; a grave, thoughtful face, which gave him a dull look; but when any thing interested or excited him his form became erect, his eyes flashed like steel, and his smile—as sweet as a woman's—would illumine his whole face." He graduated June 30, 1846, with the usual rank of second lieutenant of artillery; the Mexican war had just commenced, and all the West Point graduates were ordered into active service, arriving before Vera Cruz, Mar. 9, 1847. After a siege of 20 days that city surrendered, and the little army under gen. Scott moved on towards the Mexican capital, defeating Santa Anna, at Gerro Gordo, and winning other victories at Contreras and Churubusco. At the latter place Jackson made his first military mark. The first lieut., then commanding a battery, was killed and Jackson took his place, behaving so gallantly that he was given the rank of brevet captain. After Churubusco gen. Scott defeated the enemy at Molino del Rey, and finally took the castle of Chapultepec, which was the last defense of the city of Mexico. In the assault on the castle Jackson showed the greatest courage and daring, for which he was warmly complimented by his superior officers. Soon after the capture of the city, Sept. 14, 1847, which put an end to the war, Jackson, now a major, was sent with his command to fort Hamilton, New York harbor, where he remained two years. Here he became absorbed in reflections upon religion, was baptized, and became an attendant of the Protestant Episcopal church. From fort Hamilton he was sent to fort Meade, near Tampa bay, Florida. Not long afterwards he was chosen professor of natural philosophy and artillery tactics in the Virginia military institute at Lexington. He resigned from the army in July, 1851, and accepted the professorship. A few months after settling at Lexington he joined the Presbyterian church, and took an active part in the usual religious work. Aug. 4, 1853, Jackson married Miss

Eleanor Junkin, who lived only 14 months—just as long as his mother lived after her second marriage. In the summer of 1856 he traveled in England and on the continent. July 15, 1857, he married Mary Ann Morrison, daughter of Dr. Robert Morrison, a Presbyterian clergyman of North Carolina, and the pair settled down to a quiet life near Lexington, but soon to be disturbed by the coming rebellion. Jackson went with his state, and on April 22, 1861, became once more a soldier, joining the army of the rebellion under gen. Robert E. Lee at Richmond. He was made a colonel and put in command at Harper's Ferry, which place became the rendezvous for all the troops in the valley of Virginia. Jackson was soon superseded at Harper's Ferry by gen. Joseph E. Johnston, and was put in command of five regiments of Virginia volunteers, forming the body afterwards known as the "Stonewall Brigade." The first work of importance done by Jackson in the war of the rebellion was the destruction of the works, locomotives, and cars of the Baltimore and Ohio railroad at Martinsburg; and on this performance he wrote the following noticeable comment: "It was a sad work; but I had my orders, and my duty was to obey. If the cost of the property could have been expended in disseminating the gospel of the Prince of Peace, how much good might have been expected!" Jackson had a skirmish at Haines's farm, where he had two men killed and ten wounded, and then he fell back to join the main body of the confederates near Winchester. July 3, 1861, he was made a brigadier-general. In the battle of Bull Run Jackson had an active though not prominent part; prominent enough, however to secure his well-known *sobriquet* of "Stonewall," which came from a remark of gen. Bee, whom Jackson was supporting. Bee was in active engagement, and to encourage his men he pointed to his support ranged on a ridge near by and cried out: "There is Jackson standing like a stone wall; rally behind the Virginians." A moment later gen. Bee was killed. Immediately afterwards Jackson's force was engaged, whereupon he ordered, "Reserve your fire till they come within fifty yards; then fire and give them the bayonet; and when you charge, yell like furies." This is said to have been the origin of the afterwards well-known "rebel yell." After the Bull Run battle Jackson fell back beyond Centerville, and began to drill his troops; and, Oct. 7, 1861, he was raised to major-general, taking command under gen. Johnston. Early in 1862 Jackson had the principal command in the Shenandoah valley, and by the secrecy and swiftness of his many sudden attacks he gave the union commanders much trouble, especially in the daring raids made by col. Ashby's cavalry. Jan. 31, 1862, Jackson suddenly resigned in consequence of difficulties or jealousies with gen. Loring, but he was prevailed upon to withdraw his letter. When the series of engagements known as the "Seven days' battles" began, Jackson resumed active service under Lee, and with his command was prominent in the conflict at Cold Harbor, June 27, 1862, and at Malvern Hill four days afterwards. On Aug. 9 his command, having been ordered northward, engaged in the indecisive battle at Cedar mountain. Soon after this event Jackson's powers were enlarged, and he was given the command of almost the half of the confederate army of Virginia, being second in authority only to gen. Lee. Aug. 29 he was in command at the second Bull Run battle. Two weeks afterwards, by a wonderfully rapid movement, he captured nearly 11,000 union soldiers at Harper's Ferry; instantly ordered a forced march, and the second day afterwards arrived at Antietam in time to participate in the conflict at that place. His next active service was at the battle of Fredericksburg, Dec. 13, 1862, where his behavior secured for him the rank of lieut.general. A period of comparative rest followed until May 2, 1863, when with about two-thirds of the confederate army he marched rapidly 15 miles to near Chancellorville, and by a surprise turned the right of the union army, driving it back upon the main body. Jackson supposed the fighting to be over, and that he had won an important victory; but with an escort of a few men rode into a forest to make observations. He had ridden some distance beyond the pickets, when one of the party remarked that he ought not thus to expose himself, but he replied, "There is no danger; the enemy is routed." He soon became aware that he was near the union lines, and the party rode back towards their own forces. They were mistaken for union cavalry, and were fired upon by their own men; some were killed, some wounded, but for the moment Jackson escaped. He turned into a thicket and rode towards his lines, when his own men fired again, and he received three shots, one in the hand and two in the arm, one of the latter breaking the bone and cutting the artery two inches below the shoulder. After riding a short distance he was assisted from his horse and through the battle, which had recommenced on the part of the unionists and was raging furiously, he was with great difficulty removed to a safe place. The arm was taken off, but he was attacked with pneumonia and died on Sunday, ten days after receiving the wound. Jackson was a muscular man, fully six ft. high, with a clear or pale complexion, bluish-gray eyes, an aquiline nose, prominent chin, strong jaws, and a large skull, with high forehead. He was a man of intense convictions, of deep moral earnestness, and of exceeding vigor and promptness in action. A bronze statue of him was dedicated at Richmond, Va., in Oct. 1875.

JACKSON, William; 1730–1803; a distinguished English musician; was liberally educated, and showing a strong taste for music, was placed by his father under the care of the organist of Exeter cathedral. At the end of two years he went to London, studied

under John Travers, organist of king's chapel; returned to Exeter, became a teacher and composer, and in 1777 organist and master of the choristers of the cathedral. His songs, canzonets, and trios rank high in England. His *Six elegies* for *three voices* Dr. Burnet considered the best of his works. He published in 1782 *Thirty Letters on Various Subjects*, and in 1798 *The Four Ages, together with Essays on Various Subjects.* He was also a landscape painter.

JACKSONVILLE, the co. seat of Duval co., Florida, on the w. bank of the St. John's river, 20 m. from its mouth, at the e. terminus of the Jacksonville, Pensacola, and Mobile railroad, 165 m. e. of Tallahassee, and 155 m. s.w. of Savannah ; pop. '80, 7,650. The streets cross each other at right angles. The city has 10 churches, 1 national bank, the Stanton institute, a high school, public and private schools, a Roman Catholic academy for girls, a hospital, 6 newspapers, and manufactories for lumber, moss, marmalade and machinery. Its commerce is considerable. The exports are lumber, cotton, naval stores, sugar, fruits, fish and vegetables. Steamers run semi-weekly to Savannah and Charleston, and river steamers daily to St. Augustine and Palatka. A bluff on the n.w. commanding a fine view of the city has some elegant residences.

JACKSONVILLE, a city and co. seat of Morgan co., Illinois ; 34 m. s.w. of Springfield, 200 m. s.w. of Chicago, 90 m. n. of St. Louis ; pop. '80, 11,009. It is at the junction of the Chicago and Alton with the Wabash railroad, and is the s. terminus of the Peoria, Pekin and Jacksonville railroad. From this city the Jacksonville, North-western and South-eastern railroad extends to Virden. This city contains 22 churches, 2 national and 3 private banks, a savings bank, 3 hotels, 7 newspapers, a free reading-room, a free library of 1600 vols., and a conservatory of music. It is distinguished for its educational and benevolent institutions. It contains Illinois college (Congregational), Illinois college for women (Methodist), Jacksonville academy for girls, a ladies' athenæum, a business college, a high school, and several graded schools. Here are the state institutions for the blind, insane, deaf-mutes, and idiotic. The Lutherans also have an orphan asylum and a retreat for the insane. The city has a woolen mill, a car shop, a foundry, soap factories, planing and flouring mills. The streets are wide and adorned with shade trees, and the city is provided with gas, water-works, and sewerage.

JACK TREE, *Artocarpus integrifolia*, a native of the East Indies, now spread over most of the tropics. It is nearly allied to the bread-fruit and bears a fruit resembling that of that tree, though much larger. It is used as food in India, but has a disagreeable flavor. Its wood is of excellent character, and is much used for carving, scroll-work, and various fancy articles.

JACME, or JAYME, EN, I.; 1207–1276; b. Montpellier, France; was king of Aragon, and count of Barcelona. He is often called the conqueror from his having conquered the Moorish kingdoms of Majorca, Valencia and Murcia, and imposed tribute on some others. The title *en* is supposed to be of the same import as the modern *don*. An ancient account of his life and exploits appeared in a Castilian translation at Barcelona in 1848, but its authenticity is not fully established.

JACMEL, or JACQUEMEL, a sea-port t. on the s. coast of Hayti, on a bay of the same name, 30 m. s.w. of Port-au-Prince; pop. 6,000. Many of the streets are very narrow, and the houses mostly of wood. It has a commodious harbor for the largest vessels, but it is exposed to the s. winds and the heavy sea. It has a considerable trade with the United States, and the West India mail steamers stop here. The climate is hot and unhealthful.

JACOB (Heb. *Yaakob*, derived variously from "heel," Gen. xxv. 26, or from "to deceive," Gen. xxvii. 36), one of the three chief Hebrew patriarchs. He was the second son of Isaac and Rebekah, and on account of his docile, domestic character was the favorite of his mother. His conduct towards his brother in regard to the birthright (Gen. xxvii.) does not greatly redound to his credit. After an exile of 21 years in Padanaram, whither he had fled to escape the vengenance of Esau, he returned to Canaan with two wives (Rachel and Leah), two concubines (Bilhah and Zilpah), 12 sons (the fathers of the subsequent Hebrew tribes), and a daughter named Dinah, who was the unintentional cause of a vindictive massacre of the Shechemites by her brothers Simeon and Levi. In his 130th year he and his family went down to Egypt, where his favorite son Joseph had become a great man under Pharaoh. Here he lived for 17 years longer in the land of Goshen, and died in his 147th year. His body was embalmed, carried back to Canaan with great pomp by his sons, and there buried near Hebron. Mention is frequently made of Jacob both in the Old and New Testaments, and there are also many legends about him in rabbinical and patristic, as well as in the Mohammedan literature.

JACOB (*ante*), as to his natural character, was significantly named "a supplanter." In his bargain with Esau he was unbrotherly and selfish in that, instead of gladly succoring his famished brother, he set a price on the nourishment which he had ready at hand, and that price extortionate—the birthright for a morsel of meat. He was guilty also in consenting to his mother's device for deceiving his father. Even his temporary opposition to it was not made on the right ground. Instead of refusing to do what was proposed because it was wrong, he objected to doing it only through fear of discovery, say-

ing not, "I shall be a deceiver," but, "peradventure I shall seem to be." His execution of the plan involed him in many falsehoods. He said to his father, "I am Esau," though he was not; "I have done as thou badest me," though his father had not bidden him do anything, and he had not done what he said he had. He falsely claimed the help of God in what he said he had done. He aggravated the deception in adhering to it by presenting the skin of a kid as his own skin, and giving counterfeit venison as the true. He consummated the fraud by repeating to his still doubting father the declaration, "I am Esau," and by taking the blessing from him as if he were the older son. His subsequent dealings with Laban also were marred by crafty selfishness, even though he supposed himself driven to it in contending against equal selfishness on Laban's part.

The providential discipline by which Jacob's character was transformed was painful, varied, long continued, and quite in the line of his sins. His brother's anger compelled him to flee from his father's house; the exile which his mother hoped would continue only a few days was prolonged to 20 years; and when at length he was returning home, fear of his brother again filled him with distress. Having imposed himself on his father as the older son, he had an older daughter imposed on him for a wife instead of the younger whom he loved. Having been extortionate in his dealings with his brother and regardless of his exhaustion by the toils of the chase, he found his own wages changed ten times during a course of toil in which, as he said, by day the drought consumed him and the frost by night; and his sleep departed from his eyes. He was greatly afflicted by Rachel's death, was dishonored by the misconduct of his children, and endured years of anguish because of the absence and supposed death of his best-beloved son. During this course of discipline the care of God over him was manifested by the vision at Bethel when he went out from home, by the mysterious wrestling with him at the brook Jabbok on his return, and by the promise to be with him in the final journey of his life down into Egypt to see his long-lost son. After the darkness which had obscured so much of his career, caused chiefly by his persistent efforts to work out his promised destiny for himself, at evening-time with him it was light. The 17 years spent by him in the land of Goshen seem to have been irradiated with the graces of a humble and devout spirit, with an honored old age, and a prophetic insight into the glories of the future for mankind, his children, and himself. Having been chastened in the world, he was not finally condemned with the world. With all his disadvantages of nature and faults of character, rendering him far less attractive socially than his impulsive, careless, generous brother, he had a nature more capable of development on the spiritual side, less controlled by appetite and by the present things of the senses, therefore more capable of being schooled into faith, and of being brought through painful discipline into a true manhood at last.

JACOB, Le Bibliophile. See Lacroix, Paul.

JACOBÆAN LILY (Amaryllis Formosissima). See Amaryllis, *ante*.

JACOB of Edessa, d. 708; an eminent Syrian theologian and writer who lived in the last half of the 7th century. In early life he entered the monastic order. He was appointed bishop of Edessa about A.D. 651, but resigning his office, he retired to a monastery in Toledo. Here he applied himself to the study of the Syriac version of the Old Testament, making many annotations, some of which are extant. He had a thorough knowledge of Hebrew, Syriac and Greek; and for his able translation of Syriac works into Greek he received the surname of *interpreter of the books*.

JACOB of Hungary, named The Master, was a religious fanatic in France during the 7th crusade, which in 1244 was headed by Louis IX, or St. Louis. St. Louis having been captured by the Mussulmans of Egypt, Jacob proclaimed through France a crusade for the liberation of the king. With 30,000 shepherds and peasants collected in Flanders, increased at Amilus to 100,000, he entered Paris, his followers committing outrages, killing the monks, and Jacob performing the rites of priest in the church of St. Eustache. Jacob having been killed by order of the queen, his followers were scattered.

JACOB, John J. See page 884.

JACOBI, Abraham, b. Westphalia, 1830; graduated at the university of Bonn in 1851, and removed to the United States in 1853. He was professor of obstetrics and diseases of women at the New York medical college 1860–69, and afterwards at the college of physicians and surgeons. He published *Dentition and its Derangements*, and was editor of the *American Journal of Obstetrics and Diseases of Women and Children*. In this branch of medical science he has attained eminence; and recently he has published a volume on diphtheria, valuable as embodying the results of extensive and careful observation.

JACO'BI, Friedrich Heinrich, a German philosopher, b. at Düsseldorf, Jan. 25, 1743. He was educated at Frankfort, whence he proceeded to Geneva with a view to preparing himself for a mercantile career. In 1770 he was appointed councilor of finance for the duchies of Berg and Jülich, and having married a lady of fortune, was enabled to devote himself to literary pursuits. In 1804 he removed to Munich, where he had been appointed a member of the newly-instituted academy of sciences, of which he became president in 1807. He died on Mar. 10, 1819. His writings consist partly of romances, and partly of philosophical treatises. The principal are *Woldemar* (2 vols. Flensb. 1779), *Eduard Allwill's Briefsammlung* (Bresl. 1781), both philosophical romances;

Ueber die Lehre des Spinoza in Briefen an Mendelssohn (Bresl. 1785), a polemic against logical methods of speculation in the search after the higher class of moral truths; and *David Hume über den Glauben, oder Idealismus und Realismus*, in which the same polemic is continued, but in which an attempt is also made to demonstrate that the mind or nature of man possesses another faculty—viz., faith, or moral intuition, by which the higher truths are as firmly grasped as, by faith in the perceptions of the senses we, so to speak, lay hold on the phenomena of the material world. Herein lies the difference between Kant (and indeed the whole school of German idealists) and Jacobi; the former appears to admit only the "subjective" reality of such conceptions as God, the soul, immortality, etc.; the latter claims for them an "objective" reality. Kant denies that the "faculty of faith" gives us "knowledge," in the strict sense of the word; Jacobi affirms that it does. One of his treatises, *Von den göttlichen Dingen und ihrer Offenbarung* (Leip. 1811), was the occasion of a rather sharp controversy between him and Schelling. Jacobi is not a systematic thinker, and did not form a school. He is, as might be expected, deficent in the qualities he despised—method and logical sequence; but his style is remarkably good, possessing both warmth and clearness. It has been compared by his countrymen to that of Plato. His collected works appeared at Leipsic (6 vols. 1812–24).

JACO'BI, Karl Gustav Jacob, a celebrated mathematician, was b. at Potsdam, in Prussia, Dec. 10, 1804; studied at the university of Berlin, where he made great progress in philosophy, philology, and mathematics; and in 1829 became a professor at Königsberg. In 1829 he published his celebrated work, *Fundamenta nova Theoriæ Functionum Ellipticorum*, for which he received the great medal of the academy of sciences of Paris; the work, however, only contains a portion of his researches on the subject of elliptic functions. In the same year he made a tour through northern Germany and France, forming the acquaintance of Gauss, Legendre, Fourier, Poisson, and other celebrated geometers. In 1842 he took a second journey, in company with his wife, to visit England and Scotland and attend the meeting of the British association. Soon after his return home his health broke down, and he started for Italy. On his return he was removed from Königsberg to Berlin, where he died of small-pox, Feb. 18, 1851. Beside the work above mentioned, Jacobi wrote a great number of memoirs on the different branches of the higher mathematics, chiefly series and definite integrals, and was a regular contributor to the celebrated *Journal für reine und angewandte Mathematik* of Crelle.

JACO'BI, Mary Putnam, m.d.; b. London, 1842; daughter of George Putnam; since 1873 wife of Abraham Jacobi, m.d. Coming to New York in 1848 she was educated at the Twelfth street grammar school; then in the woman's medical college in Philadelphia; and graduated from the college of pharmacy in New York. In 1868 she went to Paris, and was the first woman admitted to the *école de médicine*, from which she graduated in 1871, receiving the second prize, a bronze medal. Returning to New York, she commenced the practice of medicine, and was appointed professor of materia medica in the medical college established by Elizabeth Blackwell, m.d., which position she now holds. She has published many papers in the *Medical Record* and the *Journal of Obstetrics;* and she also, in connection with V. A. White, m.d., has published *Cold Pack and Massage in the Treatment of Anæmia.*

JACOBI, Maximilian, 1775–1858; a German physician, b. in Düsseldorf After studying at Jena, Göttingen, Edinburgh, and Erfurt, he became assistant in a London hospital, and subsequently director of a lunatic asylum at Sulzburg. He favored non-restraint for the insane. In 1820 he took charge of the insane asylum at Siegburg. At a festival held in 1857 to commemorate the 50th anniversary of his doctorate, were present distinguished men from Germany, France, and England.

JACOBI, Moritz Hermann, 1801–74; a brother of Karl Gustav Jakob; b. Pottsdam; was professor of civil engineering at the university of Dorpat in 1835; a member of the St. Petersburg academy of sciences in 1847. He distinguished himself by his researches in physics while in Russia. In 1832 he constructed an electric telegraph 18 m. in length between two of the palaces, and discovered by his experiments that the earth could be used to complete the electrical circuit. In 1837, simultaneously with Spencer of England, he invented the process of electrotyping. He contributed treatises on the applications of electro-magnetism to the academy of St. Petersburg.

JAC'OBIN, the name by which members of the Dominican order were popularly known in France. The name originated from the fact that their mother-establishment was situated in the *Rue St. Jacques*, in Paris; and it was thence extended to the entire order throughout France.

JAC'OBINS, the members of a political club which exercised a very great influence during the French revolution. It was originally called the *Club Breton*, and was formed at Versailles, when the states-general assembled there in 1789. It then consisted exclusively of members of the states-general, all more or less liberal or revolutionary, but of very different shades of opinion. On the removal of the court and national assembly to Paris, this club began to acquire importance. It now met in a hall of the former Jacobin convent in Paris, whence it received the name of the Jacobin club, which was

first given to it by its enemies; the name which it adopted being that of the *Society of Friends of the Constitution.* It now also admitted members who were not members of the national assembly, and held regular and public sittings. It exercised a great influence over the agitation, of which the chief seat and focus was in the capital, and this influence was extended over the whole country by affiliated societies. Its power increased until it became greater than that of the national assembly. It formed branch societies or clubs throughout France, of which there were soon not less than 1200. When the national assembly dissolved itself in Sept., 1791, the election of the legislative assembly was mainly accomplished under the influence of the Jacobin club. Almost all the great events which followed in rapid succession were determined by the voice of the club, whose deliberations were regarded with more interest than those of the legislative assembly. It reached the zenith of its power when the national convention met in Sept., 1792. The agitation for the death of the king, the storm which destroyed the Girondists, the excitement of the lowest classes against the *bourgeoisie* or middle classes, and the reign of terror over all France, were the work of the Jacobins. But the overthrow of Robespierre on the 9th Thermidor, 1794, gave also the deathblow to the Jacobin club. The magic of its name was destroyed; and the Jacobins sought in vain to contend against a reaction which increased daily both in the convention and among the people. A law of Oct. 16 forbade the affiliation of clubs, and on Nov. 9, 1794, the Jacobin club was finally closed. Its place of meeting was soon after demolished.—The term Jacobins is often employed to designate persons of extreme revolutionary sentiments.

JAC'OBITES, in church history, is the common name of the oriental sect of Monophysites (q.v.), but it belongs more specially to the Monophysites of Syria, Mesopotamia, and Chaldea. The name is derived from a Syrian monk called Jacobus Baradœus (Bar-dai), who in the reign of Justinian formed the Monophysite recusants of his country into a single party. The Jacobites at present number about 40,000 families, and are subject to two patriarchs, appointed by the sultan—one resident at Diarbekir, with the title of patriarch of Antioch; the other at Saphran, under the style of patriarch of Jerusalem.

JAC'OBITES (from *Jacobus*, the Latin form of James), the name given to the adherents of the male line of the house of Stuart in Great Britain and Ireland after the revolution of 1688. Many of the most devoted royalists followed James II. into France; but the greater part of the Jacobites remaining in their native land made a greater or less show of submission to the new government, whilst they secretly supported the cause of the Pretender. Their intrigues and conspiracies were incessant till the middle of the 18th century. Their hostility to the house of Hanover broke out in rebellions in 1715 and 1745, in consequence of which not a few of them lost their lives upon the scaffold, titles were attainted, and estates confiscated. After 1745 their cause became so obviously hopeless that their activity in a great measure ceased; and it was not long till it ceased altogether, and those who still retained their attachment to the exiled family acquiesced in the order of things established by the revolution. In Scotland, the hopes and wishes of the Jacobite party were expressed in many spirited songs, which form an interesting part of the national literature. See the *Cullodin Papers* (Lond. 1815); Hogg's *Jacobite Relics* (2 vols. Edin. 1819); and Chambers's *Jacobite Memoirs* (Edin. 1824).—The Jacobites of England were also called *Tories.* They were generally distinguished by warm attachment to the church of England, as opposed to all dissent, if they were not members of the church of Rome, and held very strongly the doctrine of *non-resistance*, or the duty of absolute submission to the king. The Jacobites of Scotland were also generally Episcopalians and Roman Catholics. Macaulay, however, points out that the Highland clans which espoused the Jacobite cause did so on other grounds than the English Jacobites, and were far from having previously received the doctrine of non-resistance. In Ireland, the Jacobite cause was that also of the Celts as opposed to the Saxons, or the native race against the English *colonists*, and of the Roman Catholics against the Protestants. These diversities prevented a complete union, and greatly weakened the Jacobites.—See *History of the Rebellion in* 1745, by R. Chambers.

JACOBS, Paul Emil, 1802–66; b. Gotha; a German painter; studied at Munich and Rome; resided in St. Petersburg, 1830–34. Returning to Gotha in 1840 he became court-painter to the grand duke, and died in his native city. His "Adam and Eve," "The Flight into the Wilderness," "Judith and Holofernes," "Samson and Delilah," were very popular, the last two receiving prizes in Philadelphia in 1850.

JACOB'S LADDER, on shipboard, is a short rope-ladder with wooden steps, to give easy access to the shrouds and tops.—It is also the name of an apparatus for raising light weights a considerable height. One form, much used in breweries and distilleries, is an endless revolving chain of buckets, filling themselves at the bottom of the chain, and emptying themselves at the top.

JACOB'S LADDER, *Polemonium cæruleum*, a herbaceous perennial plant of the natural order *polemoniaceæ*, a rare native of Britain, but more common in the center and s. of Europe, found also in the temperate parts of Asia and of North America. It is com-

mon in flower-gardens in Britain. It has pinnate leaves, with ovato-lanceolate leaflets, a smooth stem 1 to 2½ ft. high, and a terminal raceme of bright blue (sometimes white) flowers, with wheel-shaped 5-lobed corolla. Great medicinal virtues were once ascribed to it, but the only quality which it seems to possess is a slight astringency.

JACOBSON, WILLIAM, D.D.; b. England, 1803; graduated at Oxford in 1827; was vice-president of Magdalen hall, 1832–48; and then appointed regius professor of divinity. In 1865 he became bishop of Chester. He edited *Remains of the Apostolic Fathers*, 2 vols.; Nowell's *Catechism;* and the *Collected Works of Bishop Sanderson*, 6 vols.; and published two volumes of sermons.

JACOB OF VITRY; d. 1240; b. Vitry, France, in the last half of the 12th century. Attracted while a presbyter at Argenteuil by the sanctity of Maria of Ognies, he became her devoted disciple. At the request of the pope he preached against the Albigenses, and, finally enlisting in the enterprise of liberating the holy sepulcher, he went through France to levy contributions. He was made bishop of Acre in 1217 by Honorius III., and at his request went to the Holy Land. Here he baptized the children of the Saracens which the Christians had taken, and intrusted them to the care of pious women Resigning that see in 1225 he returned to Ognies, and was made by pope Gregory IX. cardinal and papal legate of France, Brabant, and the Holy Land. His work *Historia Orientalis*, or *History of Jerusalem*, is valuable. He published also *Life of St. Mary of Ognies*, sermons on the gospels and epistles, and several letters. He was an eloquent preacher.

JACOBY, JOHANN, b. 1805; a German physician; practiced in Berlin and Heidelberg. His political opinions made him notorious, and he was arrested four times upon suspicion, being accused of high treason. For his pamphlets, *Vier Fragen* and *Das Königliche Wort Friedrich Wilhelm III.*, he was pardoned; but for some later publications of his opinions he was imprisoned. He d. 1877.

JACOBY, LUDWIG SIGISMUND, D.D.; b. Mecklenburg, 1811; was of Jewish parentage, but became converted to Christianity in early manhood. He came to America and entered the Methodist church as a preacher, 1849. He was active in establishing missions in both this country and Europe, and founded a theological college at Bremen. Returning to America in 1872, he became a pastor in St. Louis, Mo.

JACOTOT, JEAN JOSEPH, the inventor of the "universal method" of education, was b. at Dijon, in France, in 1770. He served for some time in the army, but in 1790 was appointed by Napoleon first to the chair of mathematics in the normal school, afterwards secretary to the minister at war, and a director of the polytechnic. He retired to Belgium in 1815, where he was appointed lecturer on French literature in the university of Louvain, and afterwards director of the military normal school. He returned to Paris in 1838, and died there July 30, 1840. His system, propounded in general rules, which, however, without his own explanation, would have been quite unintelligible, appears to consist in directing the student's exertions to particular *subjects*, encouraging and inciting him in every possible manner to make use of his mental powers, and there leaving him; the teacher is on no account to become an expounder, but after setting the student on the right track, is to leave him to explain away his own difficulties. Jacotot's method very much resembled that of Hamilton (see HAMILTONIAN SYSTEM), and, like it, was crude and one-sided. The valuable elements of it have been incorporated in the more rational and catholic methods of recent times. The wonderful results said to have been produced by Jacotot are, so far as real, to be attributed to the exceptional zeal and energy that always characterize the apostle of a new system, as much as to the system itself.

JACO'VA, or YAKOVA, a t. of European Turkey, Albania, in the pashalic of Scutari, on the White Drin, 20 m. n.w. of Prisrend. Pop. 18,000.

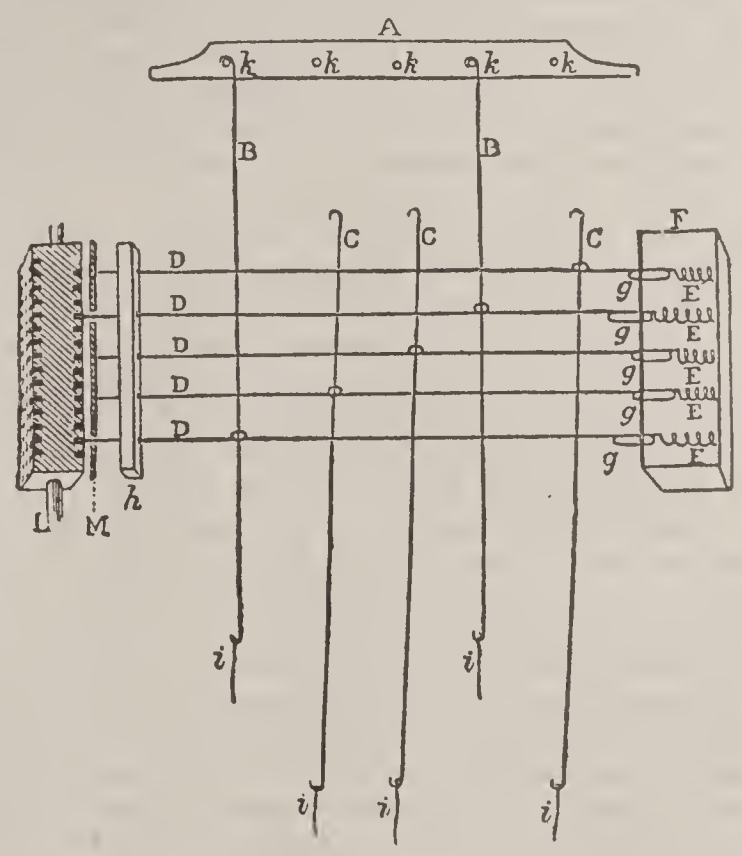
JACQUARD' LOOM, a loom fitted with the Jacquard apparatus for the purpose of pattern-weaving. This apparatus was the invention of M. Joseph Marie Jacquard, an ingenious Frenchman, a native of Lyons, who, being necessitated to carry on the weaving business of his father, for which he had a distaste, and, according to some accounts, still further stimulated by reading an account in an English newspaper of the offer of a premium for any person who should invent a machine for weaving nets, set his wits to work to improve the existing machinery for weaving. By his invention he enabled an ordinary workman, with comparative ease, to produce the most beautiful patterns in a style which had only previously been accomplished with almost incredible patience, skill, and labor. Nevertheless, the reception of his great invention by the public was most dispiriting, for although rewarded with a small pension by Napoleon, the silk-weavers themselves offered such violent opposition to its introduction that on one occasion he narrowly escaped with his life, and his machine was broken up by the body of men who, under the title of the conseil des prud'hommes, were appointed to watch over the interests of the Lyonnese traders, and it was destroyed in the public square of Lyons. To use Jacquard's own language: "The iron was sold for iron, the wood for wood, and he himself was delivered over to universal ignominy;" nevertheless, on that same spot where the machine was publicly destroyed, a statue now stands, to show the gratitude of a more enlightened generation.

Even after the partial adoption of his machine, which was patented, Jacquard had numberless annoyances to contend with; the workmen, as usual, opposed ignorant prejudice to its progress, and their masters, little better, took it up so lukewarmly that it failed in many instances, and actions were entered against the patentee for injury done to material, etc. The value of the invention was, however, too great to admit of its being long suppressed, and when its value was once fairly recognized, it effected a complete revolution in the art of weaving, especially in the finer kinds of figured silk fabrics.

The Jacquard apparatus can be adjusted to almost every kind of loom, its office being merely to direct those movements of the warp threads which are required to produce the pattern, and which previously were effected by the weaver's fingers; its arrangements generally are very complicated, but its principles are remarkable for their extreme simplicity and certainty.

In ordinary weaving the alternate threads of the warp, or longitudinal arrangement, are raised so as to enable the weaver to throw the shuttle containing the weft thread transversely across from his right to his left hand between the warp threads so raised and those left at rest. When the weft is so passed through, the raised warp threads are lowered, and the other set raised, the shuttle being then passsed through from left to right. This is the most simple idea of plaiting or weaving. If, however, a pattern has to be produced either in plain materials or varied colors, it is necessary, instead of raising and depressing the whole threads of the warp, in two sets, as above described, to raise only such as are required to develop the various parts of the figure, and this, of course, must be done with great exactness, as the position of every thread tells upon the formation of the pattern. The apparatus of Jacquard is for the purpose of regulating these movements, and its mode of action is as follows:

The warp threads are each (as in the common weaving process) passed through a small loop in the lifting thread, so as to be raised by means of the treadles, which act directly upon the lifting bars; these lifting threads (*i*, *i*, *i*, *i*, *i*) are attached to certain wires in the Jacquard apparatus, which form a rigid continuation ending in a hook, which, when nothing interferes, is caught and raised by each upward motion of the lifting bar; thus, A is the lifting bar, and it has five projections (*k*,*k*,*k*,*k*,*k*), upon which the hooks of the wires catch when in a straight position, as at B, B, but which miss them if they be thrown out of the perpendicular, as at C, C, C. There are only five of these wires given, to prevent confusion, but practically there must be one for every thread of the warp—that is, one for every thread in the width of the cloth to be woven. Each of the lifting wires passes through a horizontal needle placed at right angles, D, D, D, D, D, which has a loop formed for the purpose. This needle passes freely through an opening in the frame at *h*, and is so looped on to another rod, *g*, on the spring-box F, that it moves freely without fear of displacement, and if pushed back into the spring-box, is made to press upon one of the spiral springs, E, which restores it to its place as soon as it is freed from pressure. In the diagram, this pressure is supposed to be exerted upon three of the lifting wires, C, C, C; consequently, if the lifting bar A is simultaneously raised, those three wires are missed, whilst the other two, B, B, being in position, catch the projections *k*, *k*, on the bar, are drawn up with it, and thus raise the threads of the warp to which they are attached.



Now, the regulation of this pressure upon the horizontal needles is effected by a revolving square roller, which has each of its four sides perforated with rows of holes, which, like the needles and lifting wires, correspond in number to the threads of the warp. This roller, when in its place, receives into one row of perforations the whole row of needles where they project through the frame at *h*, and it has a motion given by the machinery which brings each row on its four surfaces in regular order into the same position, and if no impediment is offered, all the needles are undisturbed, and the upright wires lift the entire set of warp threads to which they are attached. But in order to produce the necessary variations of motion required by the pattern, a set of cards are made, each of the width of the square roller; these also are so perforated that when placed on the surface of the roller their perforations correspond exactly with those on the roller immediately beneath them; but the cards are perforated in exact accordance with the pattern, so that intervals occur in which there are no perforations to correspond with those on the roller; hence, when the roller L is brought up to the frame *h*, some of

the needles will find entrance into the holes of the roller through the corresponding perforations in the covering card, seen in section M; but others will be prevented entering by the absence of such perforations, and the card, by the resistance it offers, will force the needles thus opposed back upon the springs E, E, E, removing thereby the hooks of the lifting wires from the action of the lifting bar. The cards are looped together at the corners, and move as an endless chain on the rollers, and the entire set of perforations on the whole chain of cards exactly represents the pattern to be produced; the same as the notes represent the air in a piece of music. Of course, the simple operations here described require mechanical arrangements of great nicety to regulate them, and these are so complicated that mere verbal description would hardly help much to explain them; indeed, even with the loom and its apparatus, and its cumbrous arrangement of hundreds, and even thousands of cards, before us, the unpracticed eye finds great difficulty in comprehending its movements.

A very wonderful simplification of the Jacquard apparatus was shown in the international exhibition (1862), by Eugenio Vincenzi of Modena, by which a saving of bulk alone is effected to the extent of two-thirds, and the toil of the artisan is lessened greatly by the corresponding lightness of the parts of the machine which he has to move. The most remarkable part of this new invention is the extreme delicacy of the needle action, so that there is no shock when the card offers resistance; hence the inventor has been enabled to substitute paper for thick card-board, and can consequently perforate a dozen with the same ease as one; hence the pattern may be repeated without extra labor. This beautiful little loom will certainly displace the ordinary Jacquard, if it is not itself superseded by the wonderful invention of the electric loom by Bonelli, for a description of which see ELECTRIC LOOM.

JACQUELINE OF BAVARIA; 1400–36; a Bavarian princess whose wealth made her a prize to be roughly contended for by contemporary princes. She was the only daughter of William VI. of Bavaria, and as a child was promised in marriage to prince John of France, but his early death, 1417, left her choice free. She rejected many suitors, amongst others the duke of Bedford, brother of the English king, and married John of Brabant. Tiring of him, she left him and went to England, where the duke of Gloucester obtained a papal dispensation to marry her, declaring her first marriage void. As soon as she was his wife he set out with 5,000 men to obtain possession of her estates, which had been seized by the neighboring princes; but Jacqueline was taken prisoner at Ghent, and having at last escaped to Holland, declared herself free of her marriage tie, and carried on the war for herself. Partially succeeding, she gave up her rights as heiress of Bavaria to the duke of Burgundy, in ransom of the third husband whom she had chosen, Francis of Borselen.

JACQUEMONT, VICTOR; 1801–32; was a French botanist and explorer, who in 1829 was selected by the French natural science committee to conduct a scientific survey of eastern Asia. Arriving in Calcutta the same year, he crossed the Himalayas, and reached Chinese Tartary, but, unfortunately, his premature death, upon his return to Bombay, put a stop to his researches.

JACQUERIE (see JACK), the name given to the insurgent peasants in France in the middle of the 14th c., in the reign of John. The insurrection of the jacquerie broke out in the year 1358, when the French king was a prisoner in England, and France in a state of the greatest disorder and anarchy. The immediate occasion of it was the enormities perpetrated by Charles the Bad, king of Navarre, and his adherents; but it was really caused by long-continued oppression on the part of the nobles. Suddenly rising against their lords, the peasants laid hundreds of castles in ruins, murdered the nobles, and violated their wives and daughters, practicing every enormity, and acting, as they said, on the principle of doing as had been done to them. The insurrection broke out in the neighborhood of Paris, but extended to the banks of the Marne and the Oise. For some weeks this part of France was entirely at their mercy; but the magnitude of the danger induced the quarrelsome nobles to make common cause against them, and on June 9 the peasants were defeated with great slaughter near Meaux by Captal de Buch and Gaston Phébus, count of Foix. This put an end to the insurrection.

JACQUES-CARTIER, a co. in Quebec, Canada, which comprises a portion of Montreal island. Pop. '81, 12,345. Co. seat, Mount Claire.

JACTITA'TION OF MARRIAGE is a suit which was formerly competent in the English ecclesiastical courts, and now is competent in the English divorce court, to settle a question of disputed marriage. If a party boast or profess that he or she is married to another, the latter may institute the suit, and call upon the former to produce proof of the marriage. If this is not done, then a decree passes which enjoins the party to perpetual silence on the subject. This remedy is now scarcely ever resorted to, for, in general, since lord Hardwick's act (1766), there is sufficient certainty in the forms of legal marriage in England to prevent any one being in ignorance whether he or she is really married or not—a reproach which, however, is often made against the law of Scotland. The Scotch suit of a declarator of putting to silence, which is equivalent to jactitation of marriage, is often resorted to, the latest and most notorious instance of its use being that in the Yelverton marriage case.

JADE, a name somewhat vaguely applied to a number of minerals, not very dissimilar—nephrite, axestone, serpentine, etc. Nephrite and axestone appear to be the minerals of which *jade* ornaments are generally made. But Yu, or Chinese jade of which very beautiful vases and other articles are made in China, is supposed to be prehnite (q.v.). Jade of all kinds has a greenish color, and when polished, has a rather dull and greasy aspect.

JA'DE, or JAH'DE, the name of a river, bay, and territory, in Prussia (Oldenburg), on the North sea, immediately w. of the mouth of the Weser. The river is navigable; it drains the district of Oldenburg, and empties into Jade bay. The bay originated in an inundation in 1511; when the sea, driven by a violent tempest, overflowed the land, covering a tract 74 sq.m. in extent. The territory of the same name covers one and one-third sq.m.; pop. '71, 3,789; and since 1873 has been incorporated into Hanover. The port of Jade is named Wilhelmshaven, and comprises a tract of land near the mouth of the river, purchased from Oldenburg by Prussia in 1853. It is an extensive naval station, and was opened by the king of Prussia in person, June 17, 1869. By an elaborate engineering system, including a canal and docks walled with granite, wharves, and extensive basins, the whole system being strongly fortified, this has been made one of the best defended and most important European stations.

JAEN, formerly an independent Moorish kingdom, is now a province of Spain, forming a portion of the old province or kingdom of Andalusia (q.v.). It lies wholly within the basin of the Guadalquiver. Area, 5,184 sq.m.; pop. '70, 392,100. Conquered by the Moors on their entrance into Spain, Jaen maintained its independence as a Moorish state till 1234, when it fell into the hands of Ferdinand III., and was added to the kingdom of Castile.

JAEN, a city of Spain, capital of the province of the same name, is most picturesquely situated in a mountainous district, at the foot of a rugged castle-crowned hill, on the Rio de Jaen, a tributary of the Guadalquiver, about 50 m. n. of Granada. It is surrounded by old Moorish walls, surmounted by numberless towers and pinnacles. Though situated in the midst of plenty, in a fertile neighborhood, the town is poor. The principal buildings are two cathedrals and several hospitals. Outside the walls are charming well-watered fruit-gardens. Pop. 18,054. In former times the town was called *Jayyenu-l-harir*, "Jaen of the Silk," on account of its silk manufactures, for which it was, but is no longer, famous.

JAF'FA. See Joppa.

JAFFNA (*ante*), a district comprising several islands separated by narrow creeks, which lies n. of the island, and is included in the province, of Ceylon. It is 40 m. long and 15 wide; its population about 148,000, of whom 650 are whites, mostly descendants of the Dutch and Portuguese, the former conquerors of Ceylon. It is now subject to the crown of England. The natives are of the Tamil race, and are said to have begun to emigrate from the continent previous to B.C. 101. They are mostly idolaters. With the whole of Ceylon Jaffna became subject to the Portuguese early in the 16th century. The Dutch took it from them in 1658, and the English conquered it in 1795. When the Portuguese held the district they baptized large numbers of natives, and some thousands still adhere to the Roman church. The American board and some English societies have sent missionaries there, and through their labors many have professed the Christian faith, and Christian truth has largely permeated the mass of the people. The entire district is but little elevated above the sea. Rice is cultivated on the lower lands, which are submerged during the rainy season. On the higher land are villages with groves of palms, cocoa-nut, palmyra, banana, areda-nut and other trees, fields of inferior grains, and gardens which yield yams, betel, tobacco, and various fruits. All these products require irrigation. The native name for Jaffna is *Yarlpanum*, from Yarlpanan, a performer on the lyre, by corruption Yarlpna, Yapna, Japna, Jafna. A tradition is held by the people to the effect that about 2,000 years ago a blind lyrist obtained, by his musical skill, from the king of Ceylon a grant of the district, and named it from his own profession; that he made himself king; but in the year of Thali, 3,000 (B.C. 101), he resigned in favor of a king of the Solen race from the Coromandel coast, and that the descendants of this king reigned in Jaffna for 1400 years. There is said to be also an inscription in stone which relates that the lyrist, by the aid of 1000 men, transformed the district that was a sand heap into a garden by planting the various fruit trees which now abound. It, however, contradicts the legend in saying that in the year of Thali 3,000 he placed on his throne a son of the king of Ceylon.

JAFFNAPATAM', a seaport in Ceylon, on a peninsula at the n. extremity of the island, with a population of 8,000. The place is of Dutch origin, and a large proportion of the population of Dutch descent.

JAFFNAPATAM', or Jaffna City, is a fortified t. on an island forming part of a cluster of islands which lie n. of Ceylon, but which are usually designated as part of that island. The fort is small, but well built of blocks of white coral and is surrounded by a moat. Within it are a church in the shape of a Grecian cross, a fine house for the English commanding officer, and other English residences. The population of the town is about 4,000, natives, moormen, and whites, occupying distinct quarters. The streets

are at right angles, between 40 and 50 ft. wide. The houses are of stone, white with chunam, having but one story, which is about 20 ft. in extreme elevation. Most of them have piazzas, and are surrounded with flowers, shrubbery, and shade trees. The town has a clean and neat appearance. There are manufacturers who produce various fabrics from the cotton of the cotton-tree; also artificers in gold, silver, and wood.

JAGEL'LONS, The, the name of an illustrious dynasty which reigned in Lithuania, Poland, Hungary, and Bohemia. The name is derived from Jagellon, the last of a long line of hereditary grand dukes of Lithuania, who succeeded to his patrimonial possession in 1381, and was (1386) appointed successor to his father-in-law, Lewis the great, king of Poland and Hungary, in the former of these kingdoms, after having embraced Christianity, and changed his name to Wladislas IV. He was engaged during the whole of his reign in repelling the attacks of the Teutonic knights, whom he finally overthrew by the help of the Hussites of Bohemia. He made an unsuccessful attempt to wrest Hungary from the emperor Sigismund, founded the university of Cracow in 1400, and died in 1434 at Grodek. His son, Wladislas V., king of Poland (1434–44), was also elected king of Hungary on the death of Albert of Austria in 1439, mainly through the assistance of John Hunyady (q.v.), vaivode of Transylvania. After a war of two years' duration with the emperor Frederick III., Wladislas turned his sword against the Turks, drove them repeatedly from Moldavia, Wallachia, and Bulgaria, and returned to his capital of Buda loaded with spoils. In 1444 Amurath II. sued for peace, which the warlike Wladislas granted, swearing a solemn oath by the holy Evangelists; but the pope having, in defiance of all truth and equity, sent cardinal Julian to cause a rupture of the treaty, and absolve Wladislas from perjury, that galiant prince summoned to his side John Hunyady, and being joined by Scanderbeg, at the head of an auxiliary force of Epirotes, invaded Turkey, but was totally defeated and slain at Varna (Nov. 10, 1444), cardinal Julian being also left dead on the field. He was succeeded in Poland by his brother Casimir IV. (1444–92), whose three sons, John Albert (1492–1501), Alexander (1501–06), and Sigismund (1506–48), reigned in succession. Sigismund August (1548–70), the son of this last, and one of the wisest of the Polish monarchs, added Livonia to his kingdom, and passed an edict of universal toleration. His sisters, Anne and Catherine, married respectively Stephen Bathori of Transylvania, and John III. of Sweden, and the Jagellon dynasty was continued on the Polish throne till 1668.

Wladislas, the fourth son of Casimir IV. of Poland, was elected king of Bohemia in 1471, on the death of George Podiebrad, and also succeeded Mathias Corvinus in Hungary in 1490. Wladislas died in 1516, and was succeeded in both kingdoms by his son, Lewis II., who was defeated and slain by the Turks at Mohacs (Aug. 29, 1526), and with whom terminated the Jagellons of Bohemia and Hungary.

JA'GER. See Skua.

JÄ'GERNDORF, a small t. of Austrian Silesia, is situated on the Oppa, 14 m. n.n.w. of Troppau, has manufactures of cloth, hosiery, and linen. Pop. '80, 11,439.

JAGGAR, Thomas Augustus, D.D., b. 1839; bishop of the Protestant Episcopal diocese of southern Ohio. He graduated at the General theological seminary, N. Y., and took holy orders 1860. He is the founder of the Riverside hospital at Yonkers, N. Y.; was successively rector of Anthon Memorial church, New York, of St. John's, Yonkers, and of Holy Trinity, Philadelphia; is now bishop of southern Ohio.

JAG'GERNAUT. See Juggernaut, *ante.*

JAG'GERY, the name given in the East Indies to the sugar obtained by inspissation from the sap (*nera* or *toddy*) of palms. The sap of many species of palm yields jaggery, and probably that of almost all species might be made to yield it. The cocoa-nut yields much of the jaggery of some parts of the east. It is, as generally sold and used in the East Indies, a coarse kind of sugar; chemically, it is the same with cane-sugar. The sap, which by inspissation yields jaggery, becomes also, by fermentation, palm-wine, and from it by distillation arrack is made.

JAGUAR', *Felis onça,* one of the largest of the cat tribe, and by far the most powerful and dangerous of the American beasts of prey. It is sometimes called the American tiger. It is nearly equal to the tiger in size; the head is large, the body thick, and the limbs robust; the tail is long, and of equal thickness throughout. The color varies considerably, but is usually a rich yellow, with large black spots and rings, small black spots generally appearing within the rings, a mark by which the skin of the jaguar may be readily distinguished from that of the other large spotted or ringed *felidæ.* A black or very dark-brown variety occurs, but the characteristic markings may be seen in certain lights, deeper in color than the rest of the fur. The jaguar is strong enough to drag away a horse, and swift enough to capture horses on the open pampas. It is chiefly, however, an inhabitant of forests. It abounds so much in some districts, that settlements have been deserted on account of the destruction of domestic animals. It climbs trees, however smooth the stem, and moves about with great agility among the branches, making even monkeys its prey. Instances of its attacking man, although they sometimes occur, are not frequent, but it is bold enough to approach inclosures, and even to enter villages in broad daylight, in quest of prey. The jaguar is often taken in traps; and it is sometimes hunted with dogs, when it generally at last

takes refuge in a tree, and is there shot. The skins of jaguars are exported from South America in great numbers. The jaguar is found in almost all parts of South America, but its range does not extend n. of the isthmus of Darien. It is called OUNCE (*onça*) in some parts of South America.

JAH'DE. See JADE.

JAHN, FRIEDRICH LUDWIG, 1778–1852; an eccentric German, who was the first to introduce gymnastics into the Prussian army. His theories were fantastic and absurd, but he accomplished much by the increased attention which he invoked for physical education, especially for soldiers. He established schools for gymnastics, which became political centers; and although as long as war with France lasted, they served to increase the enthusiasm and patriotism of the people, when peace was finally concluded, Jahn, with his excited followers, was looked upon as a demagogue, and cited by the Prussian government as a stirrer up of the people. He was imprisoned; and was liberated only upon condition of never establishing himself in a university town. He settled at Freiburg, and devoted his energies to writing and publishing, becoming more exaggerated in his views and actions. In 1833 he was elected to the national assembly His principal writings were: *Runenblatter*, *Neue Runenblatter Merken zum Deutschen Volksthum*, and *Die Deutsche Turnkunst*.

JAHN, JOHANN, a distinguished Roman Catholic orientalist and biblical critic, was b. at Tasswitz, in Moravia, June 18, 1750, received his early education at Znaim and Olmütz, and in 1772 entered the Premonstratensian convent of Bruck, where he took his vows in 1774, and was appointed professor of oriental languages and biblical criticism. On the suppression of this convent, in 1784, Jahn was transferred to the same professorship in Olmütz, and finally to the university of Vienna, where he also undertook the chair of dogmatic theology. So far as regards the Roman Catholic literature of Germany, Jahn may be regarded as the father of biblical criticism. But the boldness of some of his opinions having aroused the alarm of the ecclesiastical authorities, he was honorably removed from his chair in the university, by being promoted to a canonry of St. Stephen's at Vienna, in 1803. He continued, however, to pursue the same studies with great reputation till his death in 1816, and published many works in both departments, the most important of which, passing over his grammars, lexicons, and elementary books of the Hebrew, Syriac, Chaldaic, and Arabic languages, are his *Introduction to the Old Testament*, 2 vols. 1792, and again in 4 vols., 1802–03; *Biblical Archæology*, 5 vols., 1797–1805, of both which works a compendium appeared in 1804, and again in 1814; a *Manual of General Hermeneutics*, 1812; an appendix of dissertations to this work, 2 vols., in 1813–15; and an edition of the Hebrew Bible, 4 vols., 1806. Five years after his death a collection of posthumous *Remains* was published at Tübingen, 1821, the genuineness of which, although seemingly without reason, has been called in question. His works have gone through many editions in Germany, and have been translated into several languages.

JAHN, OTTO, 1813–69; b. Kiel; studied under Lachmann and Gerhardt, at Berlin; lectured in his native town on archæology and philology, and traveled in southern Europe under the pay of the Danish government. Being made professor of philology at Leipsic in 1847, he became involved in the revolutionary outbreak of the following year, particularly in the attempt to separate Holstein from Denmark, and was deprived of his position in 1850. He was appointed in 1855 professor of archæology at Bonn. He devoted much time and thought to musical studies, and wrote a life of Mozart, which was published in 1856. He also wrote essays on philology and archæology.

JAHOVIST or JAHOIST. See ELOHIST.

JAHR, GEORGES HENRI GOTTLIEB, b. Germany, 1801; studied medicine under Hahnemann, and became one of the most prominent professors of the homeopathic system. He wrote a number of works on special diseases and their treatment by the new practice, and his *Homeopathic Pharmacopœia* is considered a standard authority in that school. His works have been translated into French and English. He d. 1875.

JAIL FEVER (known also as putrid or pestilential fever) is now considered to be merely a severe form of typhus fever (q.v.), and not a distinct disease. At the present time, owing to improved sanitary regulations, this form of disease is almost unknown; but we learn from Howard's *Account of the State of Prisons*, that, in his time, the disease was very frequent in the prisons of England, although unknown in those of the continental countries. In the celebrated Black Assize (q.v.), held at Oxford in 1577, there is no evidence that the disease prevailed amongst the prisoners, and yet it broke out among the persons present at the trial. It is little more than a century and a quarter ago (May, 1750) that the lord mayor, an alderman, judges, most of the jury, and a large number of spectators caught this disease from attending the assizes at the Old Bailey; and many of those who were infected died.

JAIL, or GAOL. See PRISON.

JAIL, LUDLOW STREET. See page 884.

JAI'NAS is the name of a heterodox sect of the Hindus, numerous adherents of which are found in every province of Upper Hindustan, in the cities along the Ganges, and in Calcutta, but more especially to the westward, the provinces of Mewar and Marwar being apparently the cradle of the sect. They are also numerous in Guzerat, in the

upper part of the Malabar coast, and are scattered throughout the peninsula. They form a large and, from their wealth and influence, an important division of the population of India. The name of the sect means a follower of *Jina*, the latter being one of the denominations of their deified saints; and as another name of these saints is *Arhat*, their followers are also called *Arhatas*.

The tenets of the Jainas or Arhatas are in several respects analogous to those of the Buddhists (see BUDDHA), but they resemble in others those of the Brahmanical Hindus. With the Buddhists, they share in the denial of the divine origin and authority of the Veda, and in the worship of certain saints, whom they consider superior to the other beings of their pantheon. They differ, indeed, from them in regard to the history of these personages, but the original notion which prevails in this worship is the same. With the Brahmanical Hindus, on the other hand, they agree in admitting the institution of caste, in performing the essential ceremonies called *Sanskâras* (q.v.), and in recognizing some of the subordinate deities of the Hindu pantheon, at least apparently, as they do not pay especial homage to them, and as they disregard completely all those Brahmanical rites which involve the destruction of animal life. It deserves notice, too, that though rejecting in general the authority of the Vedas, they admit it, and quote the Vedic text, if the doctrines of the latter are conformable to the Jaina tenets.

According to their doctrine, all objects, material or abstract, are arranged under nine categories, called *tattwas*, truths or principles, of which we need notice only the ninth and last, called *moksha*, or liberation of the vital spirit from the bonds of action—i. e., final emancipation. In reference to it, the Jainas not only affirm that there is such a state, but they define the size of the emancipated souls, the place where they live, their tangible qualities, the duration of their existence, the distance at which they are from one another, their parts, natures, and numbers. Final emancipation is only obtained "in the state of manhood (not in that of a good demon or brute), while in possession of five senses, while possessing a body capable of voluntary motion, in a condition of possibility, while possessing a mind, through the sacrament of the highest asceticism, in that path of rectitude, in which there is no retrogression, through the possession of perfect knowledge and vision, and in the practice of abstinence." Those who attain to final liberation do not return to a worldly state, and there is no interruption to their bliss. They have perfect vision and knowledge, and do not depend on works. See J. Stevenson, *The Kalpa Sûtra and Nava Tattwa*.

The principles of faith, as mentioned before, are common to all classes of Jainas, but some differences occur in the practice of their duties, as they are divided into religious and lay orders, *Yatis* and *S'râvakas*. Both, of course, must place implicit belief in the doctrines of their saints; but the *Yati* has to lead a life of abstinence, taciturnity, and continence; he should wear a thin cloth over his mouth, to prevent insects from flying into it, and he should carry a brush to sweep the place on which he is about to sit, to remove any living creature out of the way of danger; but, in turn, he may dispense with all acts of worship; whilst the *S'râvaka* has to add to the observance of the religious and moral duties the practical worship of the saints, and a profound reverence for his more pious brethren. The secular Jaina must, like the ascetic, practice the four virtues—liberality, gentleness, piety, and penance; he must govern his mind, tongue, and acts; abstain, at certain seasons, from salt, flowers, green fruits, roots, honey, grapes, tobacco; drink water thrice strained, and never leave a liquid uncovered, lest an insect should be drowned in it; it is his duty also to visit daily a temple where some of the images of the Jaina saints are placed, walk round it three times, make an obeisance to the image, and make some offerings of fruits or flowers, while pronouncing some such formula as "Salutation to the Saints, to the Pure Existences, to the Sages, to the Teachers, to all the Devout in the world." The reader in a Jaina temple is a Yati, but the ministrant priest is not seldom a Brahman, since the Jainas have no priests of their own, and the presence of such Brahmanical ministrants seems to have introduced several innovations in their worship. In Upper India, the ritual in use is often intermixed with formulas belonging more properly to the S'aiva and S'ákta worship (see Hindu Sects under INDIA), and images of S'iva and his consort take their place in Jaina temples. In the s. of India, they appear, as mentioned before, to observe also all the essential rites or Sanskâras of the Brahmanical Hindu. The festivals of the Jainas are especially those relating to events in the life of their deified saints; but they observe also several common to other Hindus, as the spring festival, the S'rîpanchamî, and others.

The Jainas are divided into two principal divisions, *Digambaras* and *S'wetâmbaras*. The former word means "sky-clad," or naked, but in the present day, ascetics of this division wear colored garments, and confine the disuse of clothes to the period of their meals. *S'wetâmbara* means "one who wears white garments;" but the points of difference between these two divisions are far from being restricted to that of dress; it is said to comprehend a list of 700 topics, of which 84 are considered to be of paramount importance. Amongst the latter are mentioned the practice of the S'wetâmbaras to decorate the images of their saints with ear-rings, necklaces, armlets, and tiaras of gold and jewels; whereas the Digambaras leave their images without ornaments. Again, the S'wetâmbaras assert that there are 12 heavens and 64 Indras; whereas the Digambaras maintain that there are 16 heavens and 100 Indras. In the s. of India, the Jainas are divided into two castes; in Upper Hindustan, they are all of one caste. It is remarkable,

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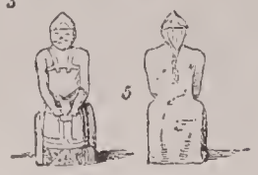

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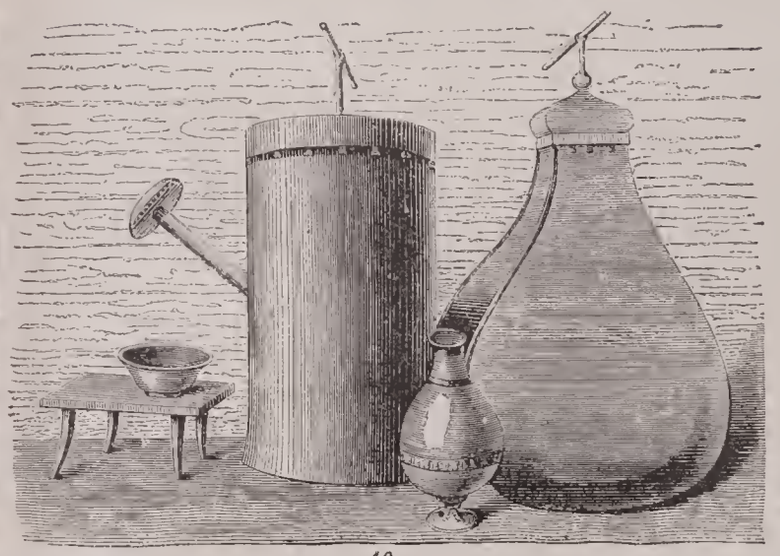

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JAKUTSK AND THE KIRGHIS.—1. Summer village of the Jakutsk. 2, 3. Jakutsk. 4. Jakutsk breeches. 5. Burial monuments of the Steppes between the Don and the Dneiper. 6. Jakutsk hood. 7. Son of Khan of Khiva. 8. Buriatin. 9. Kirghis (Cossacks of the Steppes), two brides at the right. 10. Vessels for koumyss (or kumiss). 11. Noble courtier of Khiva. 12. Kirghis Sultan and family. 13. Chuwash woman. 14. Wodjak woman. 15. Calmuck tent. 16. External view. 17, 18, Jakutsk carvings from walrus bone.

however, that amongst themselves they recognize a number of families between which no intermarriage can take place, and that they resemble, in this respect also, the ancient Brahmanical Hindus, who established similar restrictions in their religious codes.

As regards the pantheon of the Jaina creed, it is still more fantastical than that of Brahmanical sects, whence it is borrowed to a great extent, but without any of the poetical and philosophical interest which inheres in the gods of the Vedic time. The highest rank amongst their numberless hosts of divine beings—divided by them into four classes, with various subdivisions—they assign to the deified saints, which they call *Jina*, *Arhat*, or *Tîrthakara*, besides a variety of other generic names. The Jainas enumerate twenty-four Tîrthakaras of their past age, twenty-four of the present, and twenty-four of the age to come; and they invest these holy personages with thirty-six superhuman attributes of the most extravagant character. Nothwithstanding the sameness of these attributes, they distinguish the twenty-four Jinas of the present age from each other in color, statue, and longevity. Two of them are red, two white, two blue, two black; the rest are of a golden hue, or a yellowish-brown. The other two peculiarities are regulated by them with equal precision, and according to a system of decrement, from *Rishabha*, the first Jina, who was 500 poles in stature, and lived 8,400,000 great years, down to *Mahâvîra*, the 24th, who had degenerated to the size of a man, and was no more than 40 years on earth, the age of his predecessor, *Pârs'wanâtha*, not exceeding 100 years. The present worship is almost restricted to the two last Tîrthakaras; and as the stature and years of these personages have a reasonable possibility, H. T. Colebrooke inferred that they alone are to be considered as historical personages. As, moreover, amongst the disciples of Mahâvîra there is one Indrabhûti, who is called *Gautama*, and as Gautama is also a name of the founder of the Buddha faith, the same distinguished scholar concluded that, if the identity between these names could be assumed, it would lead to the further surmise that both these sects are branches of the same stock. But against this view, which would assign to the Jaina religion an antiquity even higher than 543 before Christ—the date which is commonly ascribed to the apotheosis of Gautama Buddha—several reasons are alleged by prof. Wilson. As to the real date, however, of the origin of the Jaina faith, as the same scholar justly observes, it is immersed in the same obscurity which invests all remote history amongst the Hindus. We can only infer from the existing Jaina literature, and from the doctrines it inculcates, that it came later into existence than the Buddhist sect. The best essays on the tenets, mythology, observances, and literature of this sect are those by Colebrooke in his *Miscellaneous Essays*, and by Wilson in the first volume of his works (London, 1862).

JAKJOKERTA, Jakyokarta, or Yugyakarta, capital of the Dutch residency of the same name in Java; pop. 50,000. It is the seat of a native sultan, a Dutch resident and assistant resident, and has many Europeans. A curious feature of the town is the sultan's water-palace, built on a terraced island, with subterranean approaches, walls, and towers. It is falling into decay. The residents and the Europeans dwell in the fort, which commands the palace and town. There is a church, school, and shot-foundry. The sultan has a body-guard of young females.

JAKUTSK' (*Yakootsk*), chief t. of the government of that name in eastern Siberia (see Siberia). It is situated on the left bank of the river Lena, lat. 62° 1′ n., long. 129° 44′ e.; distance from St. Petersburg, 5,751 m.; pop. '80, 4,779 inhabitants. The whole industry of the town consists in candle-works, but it is, notwithstanding, the principal market of eastern Siberia for traffic with the native hunting tribes of the Jakuts and Buriats. The former, mostly nomadic tribes, possessing large herds of cattle and horses, bring butter to the market, which is dispatched on horseback to the port of Okhotsk. The latter, also a nomadic tribe, bring to Jakutsk great quantities of fur skins, of sables, foxes, martens, squirrels, bears, hares, etc. The most animated periods of the year are the months of May and June; in the former, the goods are dispatched to the sea-ports; in the latter, an important fair takes place annually, during which the quantity of merchandise sold, chiefly furs and mammoth tusks, amounts to £50,000 in value. Manufactured goods, hardware, etc., are brought from Irkutsk by the Lena.—The recently organized government of Jakutsk has an area of 1,511,228 sq.m., and a pop. of 231,997.

JAL'AP, a well-known purgative medicine, is the root of *exogonium purga*, a plant of the natural order *convolvulaceæ*. It is found in Mexico, at an elevation of about 6,000 ft. above the level of the sea, in the neighborhood of the town of Jalapa or Xalapa, from which the name jalap is derived. It is a perennial twining plant, with large flowers and a turnip-like root, varying from the size of a hazel-nut to that of a man's fist. The roots when fresh are white and fleshy, and abound in a milky juice. They are prepared for the market by drying.—Jalap was long erroneously referred to other plants, amongst others *mirabilis Jalapa*, known in our flower-gardens as *marvel of Peru*. —The root known as *male jalap* or *he jalap*, with which the true jalap of commerce is often adulterated, was recently declared by Mr. Hartweg to be *ipomæa batatoides*. Its properties are somewhat similar to those of true jalap, but it is very inferior.

Jalap seems to have been first introduced into this country as a medicine about 1609.

The dried roots are brown and wrinkled externally, and of a deep yellowish-gray color internally; their odor is faint and disagreeable, and their taste is nauseous. The

active ingredient is the resinous portion, which varies from about 10 to nearly 20 per cent, and which is composed of two distinct substances, *jalapine* ($C_{42}H_{35}O_{20}$) and *jalapic acid.* Jalap resin may be distinguished from common resin by its insolubility in volatile oils. Jalap is a valuable cathartic, but is seldom given alone. Its purgative action is increased by the addition of a little calomel, and its hydragogue action by bitartrate of potash, while its tendency to produce griping is obviated by the addition of a little ginger. It is extremely useful in those febrile affections of children which are associated with constipation; and in diseases of the brain it is a good purgative to select, in consequence of its derivative action. In the form of *compound jalap powder*, which consists of one part of powdered jalap, two parts of bitartrate of potash, and a little ginger, it is of great service in some kinds of dropsy, in consequence of its hydragogue action.

The ordinary dose of powdered jalap for an adult varies from 10 to 30 grains, a scruple generally acting smartly and safely; for children under a year old the dose is from 2 to 5 grains. The dose of the compound powder is double that of the ordinary powder. The *tincture of jalap*, in the dose of 1 or 2 drams, is a useful addition to the ordinary black draught when it is desired to increase its activity.

JALA'PA, a city in the Mexican confederation, is second in importance among the towns of the state of Vera Cruz. It is on the grand route between the capital of the country and the sea-port of Vera Cruz, and is about 60 m. w.n.w. from the latter. Situated at an elevation of 4,335 ft. above the level of the sea, its climate may be said to be that of the temperate region, and it is a favorite resort of the invalids of the coast. Pop. about 10,000.

JALISCO, an important Mexican state on the Pacific ocean, formerly the kingdom of Nueva Galicia; it now comprises 9 cantons, or districts; 48,967 sq.m., pop. '70, 966,689. The surface of the country is varied, chiefly mountainous, but in the valleys fertile and beautiful. It is well watered by a number of streams, the Lerma, or Rio Grande de Santiago, 600 m. in length, being the largest. There are numerous lakes, of which the most important is Chapala, 90 m. long, and 10 to 35 m. wide. The volcano of Colima is about 12,000 ft. in height. Nearly all the tropical products can be grown in this province, sugar-cane, in particular, being very successful. It is also a rich mining country, but is little worked. The population is composed, mainly, of tribes of native Indians. Capital, Guadalajara.

JAMAI'CA, aboriginally *Xaymaca,* or *land of wood and water,* one of the West India islands, and by far the most important of those belonging to Great Britain, is about 90 m. to the s. of Cuba, and stretches in n. lat. between 17° 40′ and 18° 30′, and in w. long. between 76° 15′ and 78° 25′. Area, 6,400 sq.m. (rather more than that of Yorkshire); greatest length, 150 m.; greatest breadth, 50 miles. It is traversed from e. to w. by a heavily-timbered ridge, called the Blue mountains, which rises to about 7,000 feet. From this range, at least 70 streams descend to the n. and s. shores; but owning to the shortness and declivity of their courses they are not navigable, with the exception of one, the Black river, which affords, for small craft, a passage into the interior for 30 miles. Excellent harbors are everywhere to be found. But incomparably the best of these is formed by a deep and capacious basin in the s.e. quarter of the island, which washes the most spacious and fertile of the plains between the hill-country and the coast. Around this inlet, and within a few miles of each other, are all the considerable centers of population, Port Royal, Kingston, and Spanish Town.

The climate varies considerably—the torrid belt of the coast gradually passing into the temperate region of the central heights. The latter is said to be remarkably favorable to longevity; and, after having long been a retreat for the residents themselves, it has lately begun to attract invalids from the United States. To contrast two positions—the one near Kingston harbor, and the other at the intermediate elevation of 4,000 ft.—their annual means are stated to be respectively 81° F. and 68° F. Earthquakes have occasionally occurred, one of them, in 1692, having almost overwhelmed Port Royal.

In 1861 the total population amounted to 378,433, of whom 13,816 were whites, and the remainder half-breeds or blacks. At the last census, that of 1881, the total population was 580,804, of whom only 13,101 were whites. It thus appears that in the preceding ten years there had been a falling off in the white population; while the blacks, or colored men, had rapidly increased. On the productiveness and trade of the island, the emancipation of the slaves in 1834 had an unfavorable effect. But even previously to the new order of things, the commercial crops had been steadily decreasing. To take by itself the grand staple of sugar, the last 3 years of the slave-trade, 1805–7, had averaged fully 144,000 hogsheads; the four years before the commencement of the abolition of slavery, 1831–34, under 91.000; the four years of gradual abolition, 1835–38, nearly 70,000; the first four years of perfect freedom, 1839–42, less than 42,000. That a revival of trade has set in appears from the last returns, according to which the values of sugar exported were, in 1869, £443,078; in 1870, £491,616; and in 1880, £768,792. In 1871 the chief exports were in value as follows: sugar, £592,163; rum, £271,267; coffee, £147,562; logwood, £115,423; while the chief imports were flour, £135,500, and salt fish, £92,801. In 1882 the total imports of Jamaica were valued at £1,321,962, and its exports at £1,549.058. In 1860 the revenue amounted to £262,239, and the

expenditure to £255,239. In 1883 the revenue amounted to £577,240; the expenditure to £544,970.

Jamaica was discovered by Columbus during his second voyage, in 1494, and was taken possession of by the Spaniards in 1509. So great was the inhumanity of the conquerors, that 50 years after the Spanish invasion of the island the native population is said to have entirely disappeared. On May 3, 1655, a British expedition sent out by Oliver Cromwell, under admirals Penn and Venables, assailed and captured the island, which was formally ceded to England by the treaty of Madrid in 1670. Under English rule, the chief events in the history of the island were, in 1795, the rebellion of the Maroons, a community of runaway slaves, who had obtained a tract of land on the n. side of the island; in 1831, a negro insurrection; and on Aug. 1, 1834, the emancipation of the slaves. The last event was followed by ill-judged concessions of representative and constitutional rights to the newly-liberated blacks. The experiment proved a failure. The blacks considered it a grievance that offices in the magistracy were not more frequently conferred on them. They wished to suppress coolie immigration, which tended to keep down wages. They sought to obtain land without rent, and the more violent even suggested the expulsion of the whole white population of the island.

In 1865 the discontent was at its height. In October of that year, a decision of the local court at Morant Bay against a black squatter, led to a negro rising and the massacre of 23 whites. Martial law was proclaimed by gov. Eyre, 1000 houses were burned, some rebels were hanged, others were flogged, but the rebellion was most effectually suppressed. For the course he had taken, gov. Eyre was thanked by the Jamaica assembly; but in England a different view was taken of his conduct (see EYRE). He was recalled, and the representative constitution was suspended. Sir P. J. Grant was appointed governor, with entire authority to manage the affairs of Jamaica, with the aid of advisers nominated as in the other West India islands. There seems to be good authority for the statement that from the catastrophe of 1865, which proved so nearly fatal to the island, a new life has sprung. Crime has diminished; education has everywhere advanced among the black population, the number of schools in the island in 1876 (569) being just double the number in existence in 1868. A collection of Jamaica products was exhibited with very satisfactory results at the Philadelphia exhibition of 1876, 31 awards having been obtained by the island. New roads have been formed, harbors are being constructed, and an irrigation canal is in progress which will give fertility to 50,000 acres of the beautiful plain between Spanish Town and Kingston. Thanks to the Cuban refugees, who have taken several of the long-forsaken sugar estates, property is looking up, and the official statements show that the export trade is increasing. Although Jamaica has not recovered its former commercial prosperity, the negroes cannot now be described as idle. They cultivate their provision grounds with care, and produce for sale enough sugar and coffee to obtain a considerable supply of imported and manufactured articles. Extreme poverty is unknown among them, and under their present government they are described as a law-abiding and inoffensive community. Well-informed and experienced visitors to the island have strongly recommended energetic young Englishmen of the wealthier class, who contemplate emigration, to take their capital to the highlands of Jamaica, and to settle there rather than in the United States or in South America.

JAMAICA, a village on Long Island, Queens co., N. Y.; pop. '80, 10,089; reached by the Long Island, South Side, and Brooklyn Central railroads from Brooklyn, and in favor with New York business men for suburban residence. It is a thriving place, depending in a considerable measure on its market gardening interest, and its contiguity to New York; but having also some important manufactures. A good library and public school system, an energetic fire department, 6 churches, an academy, banks, newspapers, etc., are its chief public institutions.

JAMAICA BARK. See CARIBBEE BARK.

JAMAICA PEPPER. See PIMENTO.

JAMAICA PLAIN, a village in Massachusetts, since 1874 incorporated (with West Roxbury) as the 17th ward of Boston; three miles distant from the city proper, with which it is connected by horse railroad. It is a thickly settled and attractive suburb, and a favorite place of residence with persons doing business in the city. It borders on Jamaica pond, a beautiful sheet of water whose picturesque shores are lined with elegant residences. Pop. '80, 14,445.

JAMALTI'CA, the locality of a group of ruins, situated 20 m. n. of Comayagua in Honduras, and exhibiting a series of mounds, whose summits are reached by flights of steps, above which are remains indicating the former presence of considerable edifices. The largest of these mounds stands in the center of a broad terrace, and the smaller ones are arranged at regular distances from it. Excavations in the surrounding country have brought to light many ancient vases and pieces of sculpture, which indicate, in the excellence of their workmanship, the existence of a high standard of art and a marked ability.

JAMB, in architecture, the side of the apertures in walls, such as doors, windows, fireplaces, etc.

JAMBOS. See EUGENIA.

JAMES, a co. in s.e. Tennessee, on the boundary line of Georgia, with the Tennessee river on the n.w.; 200 sq.m.; pop. **5,187.** The general conformation of the country is mountainous, containing coal and iron. The soil is fertile, and easily cultivated. This co. is intersected by the East Tennessee, Virginia, and Georgia railroad. Co. seat, Ooltewah.

JAMES (Gr. *Jacōbos,* and really the same word as Jacob) is the name borne by two or three persons in the New Testament. These are James the son of Zebedee, and James the "brother" or "cousin" of our Lord, who is considered by many to be the same as James the son of Alpheus. JAMES the son of Zebedee, surnamed the *Elder,* was the brother of the apostle John, and before his call to the apostleship was a fisherman. After the ascension of Christ, he seems to have remained at Jerusalem, and was the first of the apostles to suffer martyrdom, being slain by Herod in the year 44 A.D. There is an incredible legend of his having planted the gospel in Spain, and he is the patron saint of that country. JAMES the "brother" or "cousin" of our Lord, surnamed the *Less,* the other apostle of this name, appears to have resided, like James the *Elder,* chiefly in Jerusalem. From the glimpses of him which are obtained in the Acts of the Apostles and the Epistle to the Galatians, it is clear that he presided over the mother-church of Jerusalem. According to the tradition recorded by Hegesippus (who flourished about the middle of the 2d c.), he was considered a miracle of "righteousness," even by the unbelieving Jews, who gave him the name of the *Just.* The enmity of the more bigoted Jews, however, procured his condemnation, and the high-priest Ananus gave order that he should be stoned to death. According to Josephus, the execution of the sentence excited great dissatisfaction among the people of Jerusalem. The date of his death cannot be precisely fixed, but it was probably about 62 or 63 A.D. THE EPISTLE GENERAL OF JAMES is regarded by most theologians as a composition of his. The primitive church, however, placed it sometimes among the *antilegomena* (or scriptures of doubtful genuineness), and sometimes even among the *notha* (or spurious scriptures). In the 4th c. its authority increased, and the Council of Carthage (397 A.D.) pronounced it "canonical." This, of course, did not settle the question of its authenticity; and at the period of the Reformation, both its authenticity and religious teaching were attacked by Erasmus and Cajetan (in the Roman Catholic church), by Lucar (in the Greek church), and by Luther, who called it "a downright strawy epistle," the work of some unknown James, who misunderstood the doctrines of the apostle Paul. Modern divines, generally, profess to see no discrepancy between the teaching of the two apostles, and imagine that they are looking at the same great verity from different, but not contradictory stand-points (see JUSTIFICATION). The style is clear, polished, and poetical, very little disfigured with Hebraisms, and indicating that its possessor was a man of superior culture. Compare Alford's *Greek Test.*, vol. 4 (Lond., 1859).

JAMES I. OF ENGLAND AND VI. OF SCOTLAND (1567 [England 1603]–1625), only son of Mary queen of Scots and Henry lord Darnley, was b. within the castle of Edinburgh, June 19, 1566. On his mother's forced resignation of the crown, James was proclaimed king of Scotland, July 29, 1567. The direction of his childhood devolved principally on the earl of Mar. His classical education he received from the famous George Buchanan. In 1578 the earl of Morton, then regent, was driven from power, and James nominally assumed the direction of affairs. But the new government was unpopular, and Morton soon succeeded in re-establishing himself. His fall was, however, ultimately effected by the united influence of the duke of Lennox and of the earl of Arran. Morton was condemned and executed on the charge of having been accessory to the murder of Darnley. After his death, Lennox and Arran ruled for some time without control. On Aug. 12, 1582, however, a party of the nobles seized the king at Ruthven castle; and by authority thus acquired, they imprisoned Arran, and banished Lennox. In 1583 a counterplot restored James to freedom; he immediately restored Arran to power. The confederate lords were obliged to flee to England. In 1585, through the connivance of queen Elizabeth, they returned, and with an army of 10,000 men, obliged James to capitulate in Stirling castle. Arran was again banished. In 1586 queen Mary, then a prisoner in England, was condemned by the English court to be executed. Though James remonstrated strongly, he nevertheless, after his mother's execution, concluded an offensive and defensive alliance with England. In the winter of 1589 James went to Denmark, where he married the princess Anne, daughter of Frederick II., king of that country. From 1591 to 1594 the kingdom was disturbed by various treasonable attempts by the earls of Bothwell, Huntly, and other Roman Catholic lords. It was not till James had marched against Huntly in person that these disturbances were suppressed. Long ecclesiastical disputes followed between king and clergy. In 1600 occurred the Gowrie conspiracy (q.v.). By the death of Elizabeth in 1603, James succeeded to the throne of England. He soon became unpopular with his new subjects. The anger of the Roman Catholics at the severities used towards them was the cause of the famous gunpowder plot (q.v.). The treason was discovered on Nov. 5, 1605. Nor did time increase the popularity of James with any class of his subjects. Weak and good-natured, he impoverished his exchequer to enrich parasites; he degraded the prerogative of the crown by the sale of titles of dignity; the title of baronet, which he

originated, could be bought for £1000, a barony for £5,000, and an earldom for £20,000. A Scotchman of the name of Carr became the royal favorite about the year 1607; honors and emoluments were showered upon him, and in 1613 he was created earl of Somerset. In his turn, Somerset gave place to Buckingham. Under these minions, the name and power of England, so formidable under Elizabeth, sunk to insignificance. In 1617 James revisited Scotland; a visit which his angry disputes with the clergy did not give him much leisure to enjoy. In 1619 his eldest son, Henry prince of Wales, died, to the great grief of the nation. James had set his heart upon effecting a marriage between his son Charles (now prince of Wales) and a Spanish princess. For some time, it seemed as if his design would succeed; and in 1623 Charles actually went to the court of Spain, along with Buckingham, to prosecute his suit. Buckingham, however, having quarreled with the leading men of the Spanish court, the negotiation ultimately failed through his pique. A war with Spain was the result. James died March 27, 1625. He was aptly termed by Sully "the wisest fool in Christendom." "He was indeed," says Macaulay, "made up of two men—a witty, well-read scholar, who wrote, disputed, and harangued, and a nervous, driveling idiot who acted." His reign is interesting to the student of English constitutional history, as it was during it that parliament may be said to have taken its first decided stand in its long contest with the crown. The parliament of 1621 is especially memorable on this account.

JAMES II. OF ENGLAND AND VII. OF SCOTLAND (1685–88), son of Charles I. and Henrietta Maria, was b. Oct. 15, 1633. In 1643 he was created duke of York. In 1648, during the civil war, he made his escape to France. For some time he served in the French army under Turenne; but on peace being made with Cromwell, he was obliged to leave both the army and territory of Louis XIV. He then entered into the military service of Spain. At the restoration he was made lord high admiral of England, twice commanding the English fleet in the ensuing wars with the Dutch. In 1660 he married Anne, daughter of lord chancellor Hyde. On the death of the duchess of York in 1671, James avowed his conversion to popery. On the passing of the test act in 1673 he was obliged to resign office. On Nov. 21, 1673, he married Mary Beatrice, daughter of the duke of Modena. During the great irritation against the Roman Catholics which arose in England on the publication of Titus Oates's supposed discoveries, the duke of York resided for a short while on the continent. The bill for his exclusion from the throne was twice read before the house of commons, and only prevented from passing by the prorogation of parliament, May 26, 1679. In 1680 the exclusion bill passed in the house of commons, but was rejected in the house of lords. On his return from abroad, and while the exclusion bill was before parliament, the duke was sent down to govern Scotland. On the death of Charles II., Feb. 6, 1685, James succeeded to the crown without opposition. He had scarcely been many hours a king when he violated the fundamental laws of the constitution by continuing the levy of customs, settled on the late king for life only, without the authority of parliament. At war with his parliament, in order to obtain money, James was forced to become the pensioner of Louis XIV. In passion week 1685, the rites of the church of Rome were openly celebrated at Westminster with full splendor. In the same year, the suppression of the duke of Monmouth's rebellion in England, and that of the earl of Argyle in Scotland, was followed by great severities. On the western circuit alone, well known as the bloody assize, presided over by the infamous Jeffreys, 320 persons were hanged. On the meeting of parliament Nov. 9, of this year, James requested extra supplies to maintain a standing army, which was a favorite scheme of his. He noticed in his speech, that in some recent appointments he had thought fit to dispense with the test act. After a stormy debate, government was finally beaten on the question of supply. To aid his endeavors in favor of the Roman Catholics, James resolved to try to conciliate the Puritans, much as he hated them. On April 4, 1687, appeared the memorable declaration of indulgence, in which he announced his intention of protecting dissenters in the free exercise of their religion; and the nation beheld the extraordinary spectacle of the house of Stuart leagued with republican and regicide sects against the old cavaliers of England. The attempt to conciliate the Puritans was, however, unsuccessful; and in March, 1687, it began to be evident that the war between king and church must soon reach a climax. At that time, a vacancy having occurred in the presidency of Magdalen college, Oxford, a royal letter came down recommending Anthony Farmer, a Roman Catholic, to the vacant place. For Farmer was afterwards substituted Parker, bishop of Oxford. He was known to be a Roman Catholic, though not avowed; besides which, he labored under other legal disqualifications. The fellows of the college declined to elect him. A special ecclesiastical commission was then sent to Oxford, escorted by three troops of cavalry with drawn swords. Parker was installed, the fellows expelled, and declared forever incapable of holding any church preferment. On April 27, 1688, James published a second declaration of indulgence; this he ordered to be read in all the churches in the kingdom. The order was generally disobeyed by the clergy, and seven of the bishops having ventured on a written remonstrance, were committed to the Tower on a charge of seditious libel. On June 10 of the same year, James's luckless son, known in history as *The Pretender*, was born. The history of the trial and acquittal of the seven bishops on June 29, 1688, forms one of the most glowing passages in the splendid narrative of Macaulay. On the

night of the same day, an invitation was dispatched to William, prince of Orange, signed by seven of the leading English politicians, to come over to England and occupy the throne. On Nov. 5 William landed at Torbay with 14,000 men. James found himself deserted by the nobility, gentry, and army; even his own children turned against him. He retired to France, where he was hospitably received by Louis XIV., who settled a revenue upon him. Early in March in the following year he made a hopeless attempt to regain his throne by invading Ireland with a small army, with which he had been furnished by the king of France; he was totally defeated at the battle of the Boyne, July 1, 1690. He returned to France, continuing to reside at St. Germain's till his death, Sept. 6, 1701. There is hardly a sovereign mentioned in history of whom one can find less good to say than of James II.

JAMES I., King of Scotland (1406–37), was the second son of Robert III., by Annabella Drummond, daughter of sir John Drummond of Stobhall. His elder brother, the duke of Rothesay, having been murdered by his uncle, the duke of Albany, James became heir to the throne. Fearing that he also might be sacrificed to the unscrupulous ambition of Albany, his father resolved to send him to France. Accordingly, in 1405, he set sail for that country, but he never reached it; the vessel in which he was embarked having been taken by the English. James himself was carried to London, and sent to the Tower. In 1407 he was removed to Nottingham castle. In 1417 he accompanied Henry V. in his expedition to France. On the death of Robert III., in 1406, the government devolved on the duke of Albany. On his death, in 1419, his son Murdoch succeeded to the regency. In 1424 James's long captivity came to an end: on giving hostages for payment of £40,000 he was allowed to return to his kingdom. Previous to leaving England he married Joanna, daughter of the earl of Somerset, fourth son of John of Gaunt. To the excellent education which he had received in England, James was indebted for the development of his very considerable powers of mind. His poems, *Christ's Kirk on the Green* (the authorship of which, however, is disputed), and *King's Quhair*, show him to have been possessed of high poetic talent. With the acts of his first parliament, in 1424, the regular series of Scotch statutes may be said to begin. Many excellent laws were passed for the regulation of trade, and for the internal economy of the kingdom; while these were followed up by an executive vigor which Scotland had never known before. No sooner did James feel himself firmly seated on the throne than he resolved to execute vengeance on the Albany family. By a parliament held at Perth in 1425 the two sons of the late regent Murdoch, and his father-in-law, the earl of Lennox, were found guilty of certain crimes laid to their charge, and immediately beheaded. The next few years of James's reign are among the most really peaceful in the history of Scotland previous to the union of the crowns; the whole efforts of the king being directed to the repression of the internal disorders of the kingdom; especially of the Highlands, where scarcely any law except that of the strongest had hitherto been known. In 1436 James's eldest daughter, Margaret, was married to the dauphin of France, afterwards Louis XI. Amongst those whom the wisely severe policy of the king had offended was sir Robert Graham, uncle of the earl of Strathearn. He had been imprisoned in 1425, on the impeachment of the Albany family. Owing to this cause, or to some real or imaginary injury done to his family, Graham was so irritated that in 1435 he actually used treasonable language to the king himself when presiding in parliament. For this he was banished, and his possessions declared forfeited. He retired to the Highlands, to brood over a plan of revenge, which circumstances soon put it into his power to execute. In 1437 the court held the Christmas festival at Perth. The king was about to retire for the night, when the sound of men in armor was heard outside the gates. It was Graham, accompanied by 300 armed men. The locks of the chamber-door having been purposely spoiled, Catherine Douglas, with a spirit worthy of her name, thrust her arm into the staple, to make it serve the purpose of a bar; but her arm was broken, and the ruffians entered the chamber. The king, who had hidden himself in an aperture under the floor, was discovered, dragged out, and cruelly murdered, in the 44th year of his age. Graham and the other ringleaders were afterwards seized, tortured, and put to death. James was unquestionably the most able of the Stuart family. Both his intellectual and practical ability were of a very high order.

JAMES II., King of Scotland (1437–60), was the son of James I. and queen Joanna, and was b. in 1430. He was crowned at Edinburgh when only in the sixth year of his age. Sir William Crichton, the chancellor, and sir Alexander Livingston, contrived to keep possession of the person of the young king, and consequently to wield the royal authority until he had reached his fourteenth year. The power of the house of Douglas had now risen to so great a height as almost to overshadow that of the crown. In the hope of curbing it, Crichton had treacherously caused William, the young earl, and his brother to be put to death. The policy of the act proved to be as bad as its spirit, for by the marriage of the heiress of the murdered youth with her cousin, the family was restored to more than its former power. The young king, tired of the rule of Crichton, put himself under the control of Douglas. A parliament was held, by which Crichton and Livingston were declared rebels, and their estates forfeited. Under the rule of the earl, the kingdom fell into complete anarchy, and became one scene of violence and disorder. Douglas, however, maintained the warlike renown of his house; in 1448 the

English having invaded Scotland, he gave them battle on the banks of the little river Sark, in Annandale, and defeated them with very considerable slaughter. In 1449 James married Mary, daughter of Arnold, duke of Gelderland. The character of the king appears to have been much strengthened after his marriage. Like most of the Stuarts, he possessed great animal courage; he seems also to have possessed much of his father's clearness of perception in framing laws, and of his energy in enforcing their observation. Chafing under the sway of Douglas, he resolved to assert his independence. Crichton, who had previously contrived to make terms for himself, was constituted the royal adviser. Douglas, driven from power, formed an alliance with the earl of Crawford. By the union of these two powerful nobles, it seemed that the royal authority in Scotland had virtually become extinct. James had recourse to treachery; he invited Douglas to visit him at Stirling castle, where, picking a quarrel with him, he murdered the earl with his own hand. But the power of the Douglas family was not yet broken. Through the aid of the house of York, then dominant in England, and by the martial influence of his name, the heir of the murdered earl was enabled to raise the standard of rebellion at the head of an army of 40,000 men. But James, listening to the wise advice of his councilor Kennedy, soon succeeded in quelling this insurrection. Douglas was compelled to flee; and his lands were granted to the earl of Angus. In 1460, from causes not clearly known, James infringed an existing truce with England, by laying siege to the castle of Roxburgh, then in the hands of the English. While he was standing beside one of the rudely made cannons of that time, the gun burst, and a fragment striking him, produced almost immediate death. He died in the 29th year of his age, and 24th of his reign.

JAMES III., King of Scotland (1460–88), was the son of James II. and Mary of Gelderland, and was b. in 1453. On the death of his father, the government appears to have been conducted by his mother, guided by the wisdom of bishop Kennedy. On the death of the latter in 1465, the young king fell into the hands of lord Boyd and his family. In 1467 so great influence had they acquired that James gave his sister in marriage to sir Thomas Boyd, son of lord Robert, sir Thomas being at the same time created earl of Arran. On the king's marriage, however, in 1469, with Margaret of Denmark, power changed hands: lord Boyd was obliged to flee, and even Arran was driven into exile; in which condition he died. In 1474 his widow married lord Hamilton; of which marriage were born James, created earl of Arran in 1503, and Elizabeth, who married Matthew, earl of Lennox. James was all his life under the influence of favorites. Conspicuous among these was a man named Cochran, originally a mason. Through his means the duke of Albany, brother of James, was forced to flee from the kingdom, having been charged with witchcraft; while the earl of Mar, also a brother of the king, was actually put to death on the same absurd accusation. The rule of Cochran and other low-born favorites became intolerable to the haughty Scotch nobility. Disputes having arisen with England, and an English force having advanced on Berwick, James put himself at the head of an army to oppose the invaders. Angus, Crawford, Argyle, and others resolved to profit by this opportunity to rid themselves of the obnoxious favorite. They met in council to deliberate upon their plans. It was on this occasion that Angus acquired his well-known sobriquet of "Bell the Cat." The result was that Cochran and five other of the leading favorites were seized and summarily hanged. The king himself was imprisoned within the castle of Edinburgh. The banished duke of Albany had joined the English army. On a treaty being made, he was, by some unknown means, restored to his brother's favor. He did not long hold it, however. In 1487 Margaret of Denmark died. James's love of pursuits which, for the age in which he lived, were intellectual, brought upon him the contempt of a warlike and illiterate nobility—a contempt on which the weakness of his moral character imposed no check. A conspiracy, whose origin is obscure, ended in a rebellion, having for its avowed object the dethronement of the king. Many of the peers, however, remained loyal, so that James was enabled to put himself at the head of a considerable force. But, mainly through the cowardice of the king, the royal army was defeated at Sauchie, June 18, 1488. James escaped from the field; but he was afterwards discovered by one of the rebels, and murdered. He died at the age of 36.

JAMES IV., King of Scotland (1488–1513), was the son of James III. and Margaret of Denmark, and was b. March 17, 1472. A movement, headed by the earl of Lennox, having for its object the subversion of the new government, was soon quelled; and the rule of the young king gave promise of being both vigorous and popular. The avarice of the preceding reign was followed by a profusion which conciliated the nobles; while the king's personal beauty and open manner won the hearts of the people. The naval exploits of sir Andrew Wood of Largo, in the beginning of this reign, are worthy of note. With a greatly inferior force he twice defeated the English; on one occasion capturing as many as five of their ships of war. Instead of avenging this defeat by force of arms, Henry VII., then reigning in England, wisely resolved to endeavor to win Scotland by conciliation and policy. He proposed a marriage between James and his daughter Margaret; but his wise schemes were for a long time frustrated by the gold and intrigue of the king of France. But at length the prudence of Henry prevailed, and in 1503 James married Margaret of England. By a treaty then entered into between

England and Scotland, the first peace since 1332 was established between the two countries. The king of England saw what none of his predecessors had been able to see—that he could easily gain by policy what it was hopeless to attempt to seize by force. Had he lived longer, a lasting amity might have been established between the two countries; but his son and successor was even hotter and more headstrong than James himself. The English treaty was followed by a period of almost unexampled peace and prosperity; but by the death of Henry VII., in 1509, all this fair prospect was destroyed. It was not, however, until Henry VIII. had been two years on the throne that a rupture took place between the two kings. James had demanded reparation for an alleged outrage on the Scottish flag; Henry had returned a contemptuous answer. He had further irritated the Scotch king by countenancing certain English border chieftains who had been accessory to the murder of sir Robert Ker; he had also declined to deliver a legacy of jewels bequeathed to queen Margaret by her father. Long and angry negotiations followed, which ended in James's rash and fatal invasion of England in the summer of 1513. The disastrous battle of Flodden (q.v.) was fought Sept. 9 of that year. The body of James was found on the field after the battle. He died in the 41st year of his age, and 26th of his reign.

JAMES V., King of Scotland (1513–42); was the son of James IV. and Margaret of England. He was b. at Linlithgow, April 10, 1512. The period of his long minority is one of the gloomiest in Scottish history. Such was the lawless state of the country that it was impossible to pass from one place to another except in armed companies. The duke of Albany was chosen regent by the parliament, but his government was almost powerless, owing chiefly to the jealousy and enmity of the earl of Angus, who had married the queen-mother. Ultimately Angus prevailed, and the duke retired to France. For a while the Angus branch of the Douglas family ruled Scotland in the same manner as the elder branch had ruled it in the beginning of the reign of James II. When in his seventeenth year, the king, resolved no longer to brook the authority of the earl, escaped from his custody. Angus and his family were banished and their estates declared forfeited. In 1536 James visited the court of France; and Jan. 1, 1537, he was married to Magdalen, daughter of Francis I. This amiable queen lived for but a few weeks; and in the same year James was again married. His second wife was Mary of Lorraine, daughter of the duke of Guise. Henry VIII. having declared his independence of the pope, became desirous that his nephew should follow his example; but James remained true to his ancestral faith. The king had two sons by Mary of Guise, but they both died in infancy, within a few days of each other—an event which seems to have greatly affected the mind of James. With the view of gaining his nephew over to his ecclesiastical views, Henry proposed that they should have an interview at York. He actually went to that city, and remained in it for six days, expecting the arrival of James, who never came. This piece of real or fancied neglect greatly enraged Henry. In 1542, the English having made an incursion across the border, were attacked and defeated with great loss by the earls of Huntly and Home. To avenge this defeat Henry sent the duke of Norfolk into Scotland with an army of 20,000 men.

Negotiations for peace having failed, James raised an army of 30,000 men to oppose Norfolk. The spread of the reformation had now begun to divide the kingdom, the nobles being mostly on the reformed side, while the king sided with the clergy. When the Scottish army had reached Fala, news arrived of Norfolk's retreat. The nobles, actuated either by disloyalty, or by thoughts of Flodden, declined to follow the king in an invasion of England, upon which he was bent. While this controversy was pending between James and the nobles, a report arose that Oliver Sinclair, a royal favorite, had been appointed to the chief command. The army became a scene of tumult and disorder. While in this disorganized state it was attacked by Dacre and Musgrave, two English leaders, at the head of 300 men. The Scotch were utterly routed. This dishonor to his arms seems quite to have broken the heart of James. He shut himself up in Falkland palace, where he died, Dec. 13, 1542, seven days after the birth of his unfortunate daughter Mary, in the 31st year of his age, and 30th of his reign.

JAMES VI. of Scotland. See James I. of England, *ante.*

JAMES VII. of Scotland. See James II. of England, *ante.*

JAMES, Darwin R. See page 884.

JAMES, George Payne Rainsford, a fecund and popular novelist, was b. in London in 1801, and commenced the career of authorship at an early age. Before he reached the age of 17, he wrote seven eastern tales, entitled *The String of Pearls;* but the first work that bore the author's name was *Richelieu*, which appeared in 1825. From this period till his death, which happened June 9, 1860, in Venice, where he held (since 1858) the office of British consul, his publications were, we might almost say, incessant. The principal are *Darnley; De L'Orme; Philip Augustus; Henry Masterton;* and *Mary of Burgundy.* He also composed some poetry, and several historical works of a biographical kind, such as *Charlemagne; The Black Prince;* and *Richard Cœur de Lion.* James's writings are cheerful and pleasant in spirit, but his notions of the romantic, whether in scenery or character, are entirely conventional, and are apt to make quick-witted readers smile at the juvenility of the author's fancy.

JAMES, Henry, b. Albany, 1811; pursued his studies at Union college and afterwards at Princeton. During his travels in Europe he became interested in the views promulgated by Robert Sandeman, whose work, *Letters on Theron and Aspasia*, he had edited for the American press. His religious views were peculiar, in that while he denied the doctrine of the Trinity he advocated belief in the deity of Christ. He made the acquaintance of Swedenborg, whose writings exercised a potent influence over his mind. In 1849 he delivered a series of lectures in New York, on *Moralism and Christianity*, which he afterwards collected and published in book form. In 1852 he delivered a second course of lectures, all of them inculcating the same views, namely the intrinsic difference between morality and religion in their relation to human existence. Among his works are *Lectures and Miscellanies; The Church of Christ not an Ecclesiasticism; The Nature of Evil; Christianity the Logic of Creation; Substance and Shadow;* and *The Secret of Swedenborg.* He d. 1882.

JAMES, Sir Henry, 1803–77; b. England; educated at Woolwich, and entered the engineering service of the government. He superintended a geological survey of Ireland in 1844, and the construction of the important works at Portsmouth two years later. In 1852 he was appointed chief of the ordnance survey, which office, with that of chief of the topographical and statistical departments of the ministry, he continued to hold until his death. He devoted much study to the subject of photographic printing, and devised a process which he called photozincography, a description of which he published in 1862. By this process he produced in fac-simile the *Domesday Book*, in 32 vols., and *National Manuscripts from William I. to Queen Anne.* He also prepared the *Ordnance Survey*, in Ireland, Scotland, and England and Wales; and wrote *Account of the Principal Triangulation of the United Kingdom*, and *Record of the Expedition to Abyssinia.*

*JAMES, Henry, Jr., b. N. Y., 1843; son of Henry James, religious author and lecturer, formerly lived in Cambridge, Mass., though not a Harvard graduate. For some years he has resided in London. He commenced the career of a writer by contributing fiction to *The Galaxy*, a magazine formerly published in New York, afterwards consolidated with *Scribner's Monthly.* He contributed his first novel, *Watch and Ward*, to the pages of the *Atlantic Monthly;* and has since published *The Europeans; The American; Daisy Miller; An International Episode; The Diary of a Man of Fifty; Washington Square; A Bundle of Letters*, and other works of fiction; also *Transatlantic Sketches*, a volume of travels; *French Poets and Novelists*, in the nature of criticism; and *Hawthorne*, one of the series entitled *English Men of Letters.* His writings show careful training and delicate literary workmanship, and have had wide circulation; but with their undeniable excellencies, they have been criticised for lack of balance and perspective in characterization. In beauty and aptness of diction he is scarcely exceeded. See *Supp.*, page 884.

JAMES, John Angell, an eminent Congregationalist minister, was b. at Blandford, Dorsetshire, June 6, 1785, studied for a short time at a dissenting college at Gosport, and was placed on the "preaching list" at 17. He was highly popular, and when only 20 was settled as pastor of the "church meeting in Carr's lane," Birmingham, where he remained till his death, Oct. 1, 1859. In the course of years, Angell James came to be considered the most important and influential public man in connection with his own denomination, and on account of his "evangelical" views of religion, he was also much esteemed both by the low-church party in the English establishment, and by dissenters generally in Scotland and America. He published a multitude of sermons, tracts, addresses, and small religious volumes (the best known being the *Anxious Inquirer*), which had—and some of them still have—a vast circulation.—See Dale's *Life and Letters of John Angell James* (Lond. 1862).

JAMES, Thomas, an English explorer. In 1631 he undertook the search for the n.w. passage at the instance of a company of London merchants, and was accompanied by Luke Fox, the originator of the scheme. Leaving Deptford May 5, they reached Hudson's bay June 22, and proceeded northward until Aug., 1632, when they found their passage blocked by ice in 65½° n. lat. He named the southern portion of Hudson bay James's bay, and discovering land to the w., called it New Wales. Returning to London he published *The Strange and Dangerous Voyage of Captain Thomas James in the Northern Seas, for the Discovery of a North-west Passage to the South Sea.*

JAMES, Thomas L. See page 884.

JAMES CITY, a co. in s.e. Virginia, bounded by three rivers, the James, the York, and the Chickahominy; 184 sq.m.; pop. '80, 5,442—3,195 colored. It chief productions are wheat, corn, oats, sweet potatoes, and butter. Co. seat, Williamsburg.

JAMES, EPISTLE OF (see James, *ante*), is strongly attested as genuine by being in the Syriac version of the New Testament, made about the close of the 1st c. and in use near the region where the apostle James and his first readers lived. There are probable allusions also to it in the writings of Clement, who, about the same time, was bishop of Rome, and in those of Hermes of the 2d century. Origen, in the 3d c., and Athanasius in the 4th, quote it as genuine. Eusebius, in the 4th, classes it among the writings not unanimously received; says that some even regarded it as spurious, yet testifies that it was used by most of the churches; and in other passages, quoting it without hesitation, he speaks of it as Scripture, and of its author as the holy apostle. Jerome, in the same century, says that James wrote an epistle, which some regarded as the work of another person who

had appended to it the apostle's name, but that gradually, as time advanced, its authority was established. When, in 397, the council of Carthage acknowledged it as canonical, it had become almost universally acceptable to the churches both of the east and the west. At the reformation, Luther at first, in the ardor of his zeal for the doctrine of justification by faith, misapprehending the epistle as though it contradicted the teachings of Paul, called it "strawy;" but afterwards in his mature judgment, perceiving that the contradiction was only apparent, he acknowledged its authority. The appearance of contradiction between Paul and James, on which so much stress has been laid, results from disregarding the different points at which their views of faith and works were taken. Paul first speaks of Abraham in his unrenewed state; James speaks of him after his experience of divine grace: Paul describes justification as the act of God; James looks on it as manifested to men: Paul declares that works wrought without faith are insufficient to procure it; James affirms that works wrought in faith are necessary to manifest it: Paul looks at Abraham's faith when first exercised and as known to God; James regards it after it had had its ultimation in works that were visible to men. In other passages of Paul's writings, where his point of view is the same as that of James, he agrees perfectly with him, declaring it impossible that genuine faith should be without the fruit of good works, and bringing forward the works of Abraham and Rahab as the fruits of their faith, precisely as James does.

Analysis.—Part I. chap. i. exhorts Christians to practice joyful patience under trials; to seek wisdom from God with unwavering faith; to rejoice in poverty, because of the exaltation which the gospel confers; and in wealth, because of the discipline which it supplies; to remember that God is the author of nothing evil, but of everything good; to receive the word of God promptly and humbly, reducing it to practice, and under its guidance, persevering in a benevolent and pure life. Part II. (ii.–v. 6) censures the exhibition, in Christian assemblies, of greater respect for the rich than for the poor; declares that all profession of faith, however confident, which does not lead to good works is only a pretense which cannot justify a sinner; denounces ungoverned and malevolent speech as a source of great evils and in glaring contrast to the pure and peaceful wisdom which, coming from above, manifests itself in benevolent words and deeds; and condemns strife, immorality, pride, reckless pursuit of pecuniary gain, oppression of the poor, and luxurious living, as bringing the punitive judgment of God. Part III. (v. 7–20) exhorts again to patient waiting for the coming of the Lord, encouraged by the remembrance of the prophets and especially of Job; to reverent and careful speech; to confession and prayer, commended by the example of Elijah who, with a nature like that of other men, obtained signal answers to his prayers; and to zealous efforts for the conversion of transgressors, animated by the joyful hope of saving souls from death.

JAMES FRANCIS EDWARD STEWART. See STEWART, THE FAMILY OF, *ante*.

JAMES ISLAND, one of the sea-island chain, famous for cotton, lies immediately s. of the Ashley river and the city of Charleston, S. C.; pop. 1808. Here, as was the case with all the islands in Charleston harbor, occurred many important incidents of the war of the rebellion.

JAMESON, Mrs. ANNA, an English authoress, b. in Dublin, May 19, 1797. She was the daughter of Mr. Murphy, a painter, and was married in 1827 to a Mr. Jameson, a barrister, but soon after separated from her husband, and devoted herself to literature. She died March 17, 1860. Her principal works are: *Diary of an Ennuyée* (1826); *Loves of the Poets* (1829); *Characteristics of Shakespeare's Women* (1832); *Memoirs of the Early Italian Painters*, etc. (1845); *Sacred and Legendary Art* (1848); *Legends of the Monastic Orders* (1850); *Legends of the Madonna* (1852); *Commonplace Book of Thoughts, Memories, Fancies* (1854); and *The Scriptural and Legendary History of our Lord*, etc., *as represented in Christian Art* (1860).

In all her writings, Mrs. Jameson evinces a fine fancy, a delicate, womanly perception of the beautiful, and a genuine poetic enthusiasm. The *Memoirs of the Life of Mrs. Jameson* appeared in 1878.

JAMESON, or **JAMESONE,** GEORGE, an eminent Scotch portrait-painter, called by Walpole *the Van Dyck of Scotland*, was born at Aberdeen in 1586. Of his early history nothing is known. He was at Antwerp in 1616, studying under Rubens, had Van Dyck as a fellow-pupil, and returned to Scotland in 1628. He was first patronized by sir Colin Campbell of Glenorchy, for whom he painted many portraits of the kings and queens of Scotland; among others, "Robert Bruce" and "David Bruce." His great talents being at once acknowledged, he was largely patronized by the nobility, and in 1633 Charles I. sat to him. He died at Edinburgh in 1644. Though the pupil of Rubens and associate of Van Dyck, his productions bear very little resemblance to those of either of these great masters; distinguished for their clearness of outline, delicacy and softness of shading, and beauty of color, they have neither the richness of the former nor the vigor of the latter. Though celebrated only as a portrait-painter, he has left numerous historical, miniature, and landscape pieces. His productions are very numerous; the largest collection of them is in the possession of the earl of Breadalbane, and many others of the Scotch nobility possess paintings by him; there are also several in the halls of the university of Aberdeen.

JAMESON, Robert, distinguished as a naturalist, was b. at Leith, July 11, 1774, and d. in Edinburgh, April 28, 1854. Although originally intended for the medical profession, Jameson's strongly-manifested love for the study of animals and plants early led him to devote himself to various branches of natural history. After having given evidence of considerable ability and indefatigable industry in various able memoirs, he went in 1800 to Freyberg, to study under Werner. He was elected in 1804 to the chair of natural history in the university of Edinburgh; and during the term of his professorship, numbered among his students many of the best naturalists of the present day. In 1808 he founded the Wernerian society of Edinburgh; and in 1809 brought out his *Elements of Geognosy,* in which he gave a comprehensive exposition of the Neptunian theory as it had been modified by Werner. In 1819 he founded, in concert with sir David Brewster, the *Edinburgh Philosophical Journal,* and in 1826 the *Edinburgh New Philosophical Journal,* of which he continued to be the editor till his death. His principal works, in addition to those we have already mentioned, are *A System of Mineralogy* (1804); *A Mineralogical Description of the County of Dumbarton* (1805), which was intended to have been the first of a series of similar works on all the counties of Scotland; *Manual of Minerals and Mountain Rocks,* etc. (1821); and *Elements of Mineralogy* (1837). The natural history museum of the university of Edinburgh was largely indebted to the care and skill of Jameson, for besides having carefully arranged its collections, which had been almost created by his own donations and those of a few other scientific men, he obtained, by his representations to government, an annual grant for its maintenance. He was a fellow of almost all the learned societies of Europe.

JAMES RIVER, an important river of North America, formed by the union of the Jackson and Cowpasture streams, rises near the middle of Virginia, and has its entire course in that state. It flows in an e.s.e. direction, passing Lynchburg and Richmond; and widening into an estuary for the last 60 m. of its course, it falls into the Atlantic at the southern extremity of Chesapeake bay. It is 450 m. in length, and is navigable to Richmond, 150 m. from its mouth. Its chief tributaries are the Appomattox on the right, and the Chickahominy on the left bank, made historical by the battles of 1862. It was at Jamestown, 32 m. from the mouth of this river, that the first English settlement in America was formed, 1607. By the James river and Kanawha canal, which extends westward along the upper course of the river, from Richmond to beyond the Blue ridge, the navigation of the James is carried into the center of Virginia.

JAMES, SAINT, Liturgy of. See Liturgy, *ante.*

JAMES'S BAY, a southerly arm of Hudson's bay, extends in lat. from 51° to 55° n., and in long. from 79° to 82° 30′ west. It is so beset with islands, that its navigation is more dangerous than that of the other divisions of the same inland sea. Near its southern extremity is situated Moose factory, the most important station, next to York factory, of the Hudson's bay company on the coast.

JAMES'S POWDER is a patent medicine discovered by a Dr. Robert James, who was admitted as a licentiate of the College of Physicians in 1765, and died in 1776, aged 73. The fame that he might otherwise have acquired was tarnished by his patenting his "fever powders," and still more by his falsifying the specification to such an extent as to render it impossible to prepare the powder from his directions. Hence the *compound powder of antimony* has been substituted for it in the British pharmacopœias. From the analysis of the patent medicine, for which one or two London chemists assert that they have the true original prescription, it appears to consist of more than 50 per cent of triphosphate of lime, which must be altogether inert as an antifebrile medicine; of from 35 to 45 per cent of antimonious acid, and a little antimonite of lime and teroxide of antimony. The pharmacopœial preparation very closely resembles it. Both James's powder (prescribed under the title of *pulvis Jacobi veri*) and antimonial powder are very uncertain in their operation, at one time possessing considerable activity, and at another being almost inert. Either may be prescribed in doses of about 5 grains, as a sudorific in fevers and rheumatic affections, and may be given alone, or in combination with a few grains of calomel.

JAMES TOWN, the chief place and only sea-port of St. Helena (q.v.).

JAMESTOWN, a village in New York, United States, 58 m. s.w. of Buffalo, on Chautauqua lake, and near lake Erie. It has a large trade and considerable manufactures. Pop. '70, 5,336.

JAMESTOWN, a village in Chautauqua co., N. Y., at the outlet of Chautauqua lake. It is accessible by the Atlantic and Great Western, and Dunkirk, Allegheny Valley, and Pittsburg railroads. Pop. '80, 9,357. The chief industry is manufacturing, and there are a number of grist and saw mills, obtaining water-power from the outlet. It has 10 churches, and its educational facilities are important. Chautauqua lake is noted for the occurrence of the annual meetings of a number of religious and secular organizations, all of which have grown out of the foundation of the Chautauqua Sunday-school assembly and summer school, established in 1874. The association managing these meetings has erected a number of fine buildings, including a spacious amphitheater, the whole lighted by electricity, and designed and arranged for the accommodation of large numbers of people. Here gather annually, at midsummer, from 8,000

to 10,000 enthusiastic members of different religious organizations, while the Chautauqua literary and scientific circle, designed for the encouragement of home study, has its ramifications extending throughout the entire country. The responsible head of the various institutions here consolidated is rev. J. H. Vincent, of Plainfield, N. J. The grounds occupied by the association cover an area of 4,000 ft. in length by 2,400 wide at the widest part, forming an irregular parallelogram. See CHAUTAUQUA.

JAMESTOWN, the site of the settlement made in Virginia in 1607, the first in the United States by English settlers. At that time it was a promontory extending into the James river; but the action of the water has since made it an island, while the only remains of the original settlement are comprised in the ruins of the church, fort, and a few houses. The colony numbered 107 persons, under Bartholomew Gosnold, Christopher Newport, and the celebrated capt. John Smith; and was recruited in the succeeding years by new accessions, until, in 1619, it was a large and flourishing settlement, with a house of burgesses, the first appearance of an English legislative body in American history. During the Bacon rebellion of 1676, Jamestown was burned, and it was then suffered to remain in ruins. Gen. Wayne and lord Cornwallis fought an engagement here in 1781.

JAMI (ABDERRAHMAN-BEN-AHMED), d. 1492; a Persian poet who is called after the place of his birth, Jami, in Khorassen. His writings are mystical, and he was always in high favor with the sultans of Herat, which was his place of residence. He was the author of many learned works in prose as well as verse, some of which have been preserved and translated into various European languages.

JAMIESON, Rev. JOHN, D.D., a meritorious Scotch scholar, was b. in Glasgow, March 3, 1759, studied for the ministry, and in 1781 was ordained pastor of a congregation at Forfar, in connection with the Antiburgher Secession body. In 1797 he was translated to Edinburgh, where he died July 12, 1838. Jamieson's reputation as a man of letters rests on his *Etymological Dictionary of the Scottish Language* (1808–9), of which he published an abridgment in 1818, and to which he added a supplement in 1825. It is a work of great industry, and very considerable value as a collection of Scotch words, phrases, customs, etc.; but it possesses little critical or philological merit, according to the present standard. His preliminary dissertation on the "Origin of the Scots' Language" is an elaborate but unsuccessful attempt to prove that the Scottish language is really the Pictish language; and that the Picts were not Celts, but Scandinavian Goths. Among Jamieson's other performances may be mentioned, *An Historical Account of the Ancient Culdees of Iona* (1811); *Hermes Scythicus, or the Radical Affinities of the Greek and Latin Languages to the Gothic* (1814); *An Historical Account of the Royal Palaces of Scotland;* an edition of Barbour's poem, *The Bruce* (1820); and Blind Harry's *Sir William Wallace.*

JAMIESON, JOHN, D.D. (*ante*), 1759–1838; b. Scotland. He took orders, and for some time officiated as minister in Forfar in connection with the Secession church. The latter half of his life was passed at Edinburgh, where he fulfilled the duties of his profession and wrote several able essays, amongst others, *Alarm to Great Britain, or an Inquiry into the Causes of the Rapid Progress of Infidelity; Vindication of the Doctrine of Scripture,* a reply to Dr. Priestly's *History of Early Opinions.* His most valuable works, however, were his *Etymological Dictionary of the Scottish Language;* and *Hermes Scythicus,* a treatise in which he traced the radical affinities of the Greek and Latin languages with the Gothic.

JAMROSADE. See EUGENIA.

JAMU', a t. and fort in the n. of the Punjab, is in lat. 32° 44′ n., and long. 74° 54′ east. It stands, amid the more southerly mountains of the Himalayas, on both banks of an affluent of the Chenab, the town on the right side, and the fort on the left. It contains 8,000 inhabitants.

JANAUSCHEK, FANNY, b. Prague, Bohemia, 1830. She was devoted to the stage from childhood, and in her earliest years gave evidences of artistic talent. Her career as an actress began with much success at Cologne. From 1848 to 1860 she appeared in the principal cities of Germany. In 1867 she came to the United States, playing in New York and other cities, but exclusively in the German language. She was greatly pleased with the country, and determined to play here in English, which she did during the season of 1873–74, and in later years. She is an actress of great power, but lacks the finer touches of her art. She returned to Europe in 1878.

JANES, EDMUND STONER, D.D., 1807–76; b. Mass.; was educated in Conn., and studied for the bar, but became a Methodist itinerant minister, receiving his appointment at the Philadelphia conference of 1830. He advanced with great rapidity, preaching in Philadelphia and New York, and in 1840 became financial secretary of the American Bible society. In 1844 he was elected a bishop of the Methodist Episcopal church. At the time of his death Dr. Janes was the senior bishop of his church.

JANESVILLE, a city in Wisconsin, United States of America, on both sides of Rock river, 45 m. s.s.e. of Madison. It is built partly on a plain by the river, and partly on a bluff 100 ft. above it, where the public buildings are seen to great advantage. It is

connected with Chicago, Milwaukee, and the towns on the Mississippi by intersecting railways. There is a large water-power for many mills and factories, and a state asylum for the blind. Founded in 1836, it had, in 1870, a pop. of 8,789.

JANESVILLE (*ante*), a city in Rock co., Wis., 70 m. s.w. of Milwaukee; pop. '80, 9,018 ; deals extensively in horse-breeding and trading. It has large manufactories and public schools. It has excellent water power, owing to its situation on both sides of the Rock river. The state institute for the blind is situated here, the press is represented by a number of important publications, and particular attention is paid to the cultivation of musical taste and skill, for which there are several special schools.

JANET, PAUL, b. Paris, 1823; a prolific and learned writer. He was for some time lecturer on philosophy at Bourges and Strasburg, and became professor of the history of philosophy at the Sorbonne, 1864. He represents the modern French philosophic school, advocating the principles of Cousin, and promoting the freedom of examination demanded by the most recent psychologists.

JANIN, JULES GABRIEL, a very clever French critic, was born at St. Etienne, in the department of Loire, Dec. 11, 1804, studied at the college *Louis-le-Grand* in Paris, and addicted himself to journalism at an early period. His wonderful piquancy of style, his airy grace of sentiment and wit, and his dashing paradoxes of criticism, were greatly relished by his countrymen; so much so, indeed, that Janin, without fear of ridicule, was able to dub himself *le Prince de la Critique*. For many years he made and destroyed literary reputations in the columns of the *Journal des Débats*. He also wrote a good many novels, tales, narratives of tours, etc., among which may be mentioned *L'Ane mort et la jeune Femme guillotinée; Contes fantastiques; Contes nouveaux; Voyage de Victor Ogier en Orient; Les Catacombs; La Bretagne historique*, etc.; *Voyage de Paris à la Mer;* and *Les Symphonies de l'Hiver*. He was made a member of the French academy in 1870, and died in June, 1874.

JA'NINA, a city of Turkey, capital of a vilayet, is situated on the s.w. bank of the lake of Janina, in the part of the ancient Epirus which after the war of 1877 Turkey was pressed to cede to Greece. The lake of Janina, called by the ancients *Pambotis*, consists of two portions connected by two channels. Its extreme length is about 12 m., its greatest breadth about 3 miles. At its southern end, stood the ancient city of Dodona. The city of Janina stands in the midst of an extensive and fertile plain, which produces fruits and grain in abundance. Its chief buildings are 19 mosques, 6 Greek churches, a Greek college, and 2 synagogues. Gold brocade is here extensively manufactured by Greek workmen, as well as gold lace for the east, morocco leather, silk goods, and colored linen. Janina was long the head-quarters of the gifted but unscrupulous Ali Pasha (q.v.). It is now in part deserted; its pop., which was 40,000 under Ali Pasha, is now 25,000 (of whom 15,000 are Greeks).

JAN'IZARIES (*Jeni-tsheri*, new soldiers), a Turkish military force, originally formed by the Osmanli sultan Orkhan, about 1330, of young Christian prisoners compelled to embrace Mohammedanism; and more perfectly organized by sultan Amurath I. after 1362, when the number was raised to about 10,000, and especial privileges were conferred on them. They were for some time recruited from Christian prisoners, but their privileges soon induced many young Turks to seek admission into their body. There were two classes of janizaries, one regularly organized, dwelling in barracks in Constantinople and a few other towns, and whose number at one time amounted to 60,000, but was afterwards reduced to 25,000; and the other composed of irregular troops, called *jamaks*, scattered throughout all the towns of the empire, and amounting in number to 300,000 or 400,000. At the head of the whole janizary force was the *aga* of the janizaries, whose power was limited only by the danger of revolt, and extended to life and death. The janizaries were always ready to break out into deeds of violence if their pay or perquisites were withheld. In times of peace they acted as a police force. They served on foot; generally formed the reserve of the Turkish army, and were noted for the wild impetuosity of their attack. The sultan's body-guard was formed of them. The janizaries, however, soon began to be very unruly; and their history abounds in conspiracies, assassinations of sultans, viziers, agas, etc., and atrocities of every kind; so that, by degrees, they became more dangerous to the sultans than any foreign enemies. The attempts of the sultans to reform or dissolve them were always unsuccessful, till sultan Mahmoud II., in 1826, being opposed in some of his measures by the janizaries in Constantinople, displayed the flag of the prophet, and succeeded in arousing on his own behalf the fanatical zeal of other portions of his troops. The janizaries, deserted by their aga and other principal officers, who remained faithful to the sultan, were defeated and their barracks burned, when 8,000 of them perished in the flames. A proclamation of June 17, 1826, declared the janizary force forever dissolved. All opposition was defeated with bloodshed. Not fewer than 15,000 were executed, and more than 20,000 were banished.

JANKOVACZ, a t. of the Austrian empire, in the co. of Bacs, 81 m. s.s.e. from Pesth. The surrounding country is level and fertile. Pop. '80, 10,000.

JAN MAY'EN'S LAND, an island in the Arctic ocean, named after a Dutch navigator, by whom it was discovered in 1611. It lies between Iceland and Spitzbergen, and is

the northernmost known volcanic land. Its highest point is the volcano of Beerenberg, 6,640 ft. high, a conical, snow-covered mountain, from which flames and smoke have been seen to proceed, and the sides of which exhibit immense glaciers and frozen waterfalls. Another volcano, called Esk, about 1500 ft. high, was discovered by Scoresby in 1817. An interesting account of the island is to be found in lord Dufferin's *Letters from High Latitudes.*

JANOW, Matthias von, d. 1394; son of a Bohemian knight and one of the most distinguished reformers before the reformation. Of his early history little is known. He was educated at the university of Prague, and spent six years at the university of Paris. When quite young he was celebrated for his theological learning. Visiting Rome he was appointed in 1381 prebendary at Prague and confessor of Charles II., continuing to perform the duties of the office until his death. Though not an eloquent preacher, he was a man of spiritual power, and by his writings did much to purify the church from its corruptions. His works contain the germ of those Christian principles which were unfolded by Huss, and later in Germany by Luther. In his book *De regulis Veteris et Novi Testamenti*, he portrays the corruption of the church in all its parts, and explains the causes of it. He tries everything by the divine word, rejecting the authority of human tradition and papal decretals, and severely arraigning the conduct of bishops and priests. His writings show that he took higher ground than Waldhausen and Milicz, the forerunners of Huss, and that he was in fact the Wycliffe of the Bohemian church. The pope declared him guilty of heretical teaching, and he was compelled to leave Prague. In 1410, 16 years after his death, his writings were burned with those of Wycliffe.

JANS, Anneke. See page 884.

JANSEN, Cornelius, a celebrated divine, b. of humble parentage in 1585, at Akkoi, near Leerdam, in Holland, from whom the sect of Jansenists derives its name. He was nephew of the well-known biblical commentator, and bishop of Ghent, of the same name. The studies of Jansen were divided between Utrecht, Louvain, and Paris. Having obtained a professorship at Bayonne, he devoted himself with all his energy to scriptural and patristic studies, especially of the works of St. Augustine. From Bayonne, he returned to Louvain, where, in 1617, he obtained the degree of doctor, was appointed lecturer on Scripture, and took a prominent part in the affairs of the university, especially in a contest with the Jesuits, on occasion of which he was sent upon a mission to the court of Madrid. In 1630 he was appointed to the professorship of Scripture; and having distinguished himself by a pamphlet on the war with France, *Mars Gallicus*, he was promoted, in 1636, to the see of Ypres. In this city he died of the plague, May 6, 1638, just as he had completed his great work, the *Augustinus*, which proved the occasion of a theological controversy the most important, in its doctrinal, social, and even political results, which has arisen since the reformation. Its main object, in which it coincided with the scheme of doctrine already condemned in Bajus (q.v.), was to prove, by an elaborate analysis of St. Augustine's works, that the teaching of this father against the Pelagians and semi-Pelagians (q.v.), on grace, free-will, and predestination, was directly opposed to the teaching of the modern, and especially of the Jesuit schools (see Molina), which latter teaching he held to be identical with that of the semi-Pelagians. In the preface he submitted the work to the judgment of the holy see; and on its publication, in 1640, being received with loud clamor, especially by the Jesuits, and at once referred to Rome for judgment, the *Augustinus*—together with the antagonist publications of the Jesuits—was prohibited by a decree of the inquisition in 1641; in the following year, it was condemned as heretical by Urban VIII. in the bull *In Eminenti.* This bull encountered much opposition in Belgium; and in France, the *Augustinus* found many partisans, who were animated by a double feeling, as well of doctrinal predilection as of antipathy to the alleged laxity of moral teaching in the schools of the Jesuits, with whom the opposition to the *Augustinus* was identified (see Jesuit). The most eminent of the patrons of the *Augustinus* were the celebrated association of scholars and divines who formed the community of Port Royal (q.v.), Arnauld, Nicole, Paschal, etc. Nevertheless, the syndic of the Sorbonne extracted from the *Augustinus* seven propositions (subsequently reduced to five) which were condemned as heretical by Innocent X. in 1653. Hence arose the celebrated distinction of "right" and of "fact." The friends of the *Augustinus*, while they admitted that in point of *right* the five propositions were justly condemned as heretical, yet denied that in point of *fact* these propositions were to be found in the *Augustinus*, at least in the sense imputed to them by the bull. A further condemnation was therefore issued by Alexander VII. in 1656, which was rigidly enforced in France, and generally accepted; and in 1668 peace was partially restored by Clement IX., at least all overt opposition was repressed by the iron rule of Louis XIV. The more rigid Jansenists, however, and at their head Antoine Arnauld, emigrated from France, and formed a kind of community in the Low Countries. On the death of Arnauld in 1694, the controversy remained in abeyance for some years; but it was revived with new acrimony by the well-known dispute on the so-called "case of conscience," and still more angrily in the person of the celebrated Quesnel (q.v.), whose *Moral Reflections on the New Testament*, although published with high ecclesiastical authority, at various intervals from 1671 till his death, 1710, was denounced to the pope, Clement XI., as a text-book of undisguised Jansenism. This pope issued in 1713, in the

constitution "Unigenitus," a condemnation in mass of 101 propositions extracted from the *Moral Reflections*, which, however, met with great resistance in France. The death of Louis XIV. caused a relaxation of the repressive measures. The regent, duke of Orleans, was urged to refer the whole controversy to a national council, and the leaders of the Jansenist party appealed to a general council. The party thus formed, which numbered four bishops and many inferior ecclesiastics, were called, from this circumstance, the appellants. The firmness of the pope, and a change in the policy of the regent, brought them into disfavor. An edict was published, June 4, 1720, receiving the bull; and even the parliament of Paris, submitted to register it, although with a reservation in favor of the liberties of the Gallican church. The appellants for the most part submitted, the recusants being visited with severe penalties; and on the accession of the new king, Louis XV., the unconditional acceptance of the bull was at length formally accomplished, the parliament being compelled to register it in a *lit de justice*. From this time forward, the appellants were rigorously repressed, and a large number emigrated to the Netherlands, where they formed a community, with Utrecht as a center. The party still remaining in France persisted in their inveterate opposition to the bull, and many of them fell into great excesses of fanaticism. See CONVULSIONARIES.

In one locality alone, Utrecht and its dependent churches, can the sect be said to have had a regular and permanent organization, which dates partly from the forced emigration of the French Jansenists under Louis XIV., partly from the controversy about Quesnel. The vicar-apostolic, Peter Codde, having been suspended by Clement XI. in 1702, the chapter of Utrecht refused to acknowledge the new vicar named in his place, and angrily joined themselves to the appellant party in France, many of whom found a refuge in Utrecht. At length, in 1723, they elected an archbishop, Cornelius Steenhoven, for whom the form of episcopal consecration was obtained from the French bishop Vorlet (titular of Babylon), who had been suspended for Jansenist opinions. A later Jansenist archbishop of Utrecht, Meindarts, established Haarlem and Deventer as his suffragan sees; and in 1763 a synod was held, which sent its acts to Rome, in recognition of the primacy of that see, which the church of Utrecht professes to acknowledge. Since that time, the formal succession has been maintained, each bishop, on being appointed, notifying his election to the pope, and craving confirmation. The popes, however, have uniformly rejected all advances, except on the condition of the acceptance of the bull Unigenitus, and the recent act of the holy see, in defining as of Catholic faith the dogma of the immaculate conception of the Blessed Virgin Mary, has been the occasion of a new protest. The Jansenists of the Utrecht church still number about 6,000 souls, and are divided over 25 parishes in the dioceses of Utrecht and Haarlem. Their clergy are about 30 in number, with a seminary at Amersfoort. The Jansenist archbishop of Utrecht has recently consecrated a bishop for the Old Catholic (see DÖLLINGER) community in Germany.

JANSSENS, CORNELIS. See JANSEN, CORNELIS, *ante*.

JANSSENS, ABRAHAM, a celebrated Dutch painter, is supposed to have been b. in Amsterdam about 1569. Of a thoughtless and excitable disposition, he made himself completely miserable by his marriage with a girl of extravagant tastes, and spent his latest years in extreme want. The year of his death is unknown. Many churches in Flanders possess pictures executed by him; the most famous are the "Burying of Christ" and a "Madonna and Child,' in the church of the Carmelites at Antwerp. There are also good specimens of his style in the galleries of Munich, Vienna, Dresden, and Berlin. Janssens displayed great vigor in drawing and designing; he was an admirable colorist, and he certainly ranks next, among the historical painters of the period—though at a considerable distance—to Rubens.—CORNELIS JANSSENS, probably born in Flanders, died in Amsterdam in 1665, acquired a reputation as a very fine painter of portraits and historical subjects.—Another eminent artist of this name was VICTOR HONORIUS JANSSENS (born at Brussels 1664, died there 1739).

JANSSENS, FRANCIS, D.D. See page 884.

JANTHI'NA, a genus of gasteropodous mollusks of the order *scutibranchiata*, and of the same family (*haliotidæ*) with ear-shells. The shell is very similar in form to that of a common snail, but thin and beautifully pellucid. These mollusks are remarkable as inhabitants of the open ocean, in which they swim at the surface of the water by means of a float formed of vesicles containing air, and secreted by the foot. To the under-surface of this float, the egg-capsules are attached. The vesicular float has no more anatomical connection with the animal than the shell has. The janthinæ abound in the seas of warm climates; are plentiful in the Mediterranean, but rare on the British coasts.

JANUARY, the first month of the year. It was, among the Romans, held sacred to Janus (q.v.), from whom it derived its name, and was added to the calendar along with Feb. by Numa. It was not till the 18th c. that January was universally adopted by European nations as the *first* month of the year, although the Romans considered it as such as far back as 251 B.C.

JA'NUS AND JANA, two very old Latin divinities, male and female, whose names are merely different forms of *Dianus* (probably the sun) and *Diana* or *Luna* (certainly the moon). The worship of the former held a high place in the regards of the

Romans. In every undertaking his name was first invoked, even before that of Jupiter, which is the more singular, as Jupiter was unquestionably the greatest of the Roman gods. Perhaps it may be taken as a verification of the tradition, that Janus was the oldest of them, and ruled in Italy before any of the others came thither. He presided not only over the beginning of the year, but over the beginning of each month, each day, and the commencement of all enterprises. On New Year's day, people made each other presents of figs, dates, honey-cakes, sweetmeats, etc., wore a holiday-dress, saluted each other kindly, etc. The pious Romans prayed to him every morning, whence his name of *Matutinus Pater* ("Father of the Morning"). He is represented with a scepter in his right hand, and a key in his left, sitting on a beaming throne (probably a relic of the original, or at least very old worship of Janus as the sun). He has also two faces (whence the expression applied to a deceitful person "Janus-faced"), one youthful, and the other aged, the one looking forward, and the other backward, in which some have professed to see a symbol of the wisdom of the god who beholds both the past and future, and others, simply of the return of the year. Numa dedicated to him the passage close by the Forum, on the road connecting the Quirinal with the Palatine. This passage (erroneously called a temple, but which was merely a sacred gateway, containing a statue of Janus) was open in times of war, and closed in times of peace. It is a striking commentary on the military habits of the Romans, that the place was shut only thrice in 700 years, first by Numa himself, again at the close of the first Punic war, and for the third time, under Augustus. It was also closed by Vespasian in 71 A.D.

JAPAN (native name, *Nipon*—or *Däi Nipon*, Great Nipon—i.e., the Land of the Rising Sun), a very ancient island-empire of eastern Asia, long remarkable for the proud isolating policy of its rulers, and now claiming special consideration, both on account of its recent renewed relations with the civilized world, and the wonderful changes that during the last few years have been in progress in the country.

Japan Proper comprehends four large islands, viz., Nipon (the Japanese mainland), Sikok or Sikopf, Kiusiu, and Yezo, and extends from 31° to 45° 30′ n. lat. The empire of Japan—the area of which has been estimated at 266,500 sq.m.—includes about 3,800 small islands and islets besides the four larger ones, and is situated between 26° to 52° n. lat., and 128° to 151° e. long. It is bounded on the n. by the sea of Okhotsk, on the e. by the north Pacific ocean, on the s. by the eastern sea of China, and on the w. by the sea of Japan. In 1872 the population of Japan was 33,110,825.

Physical Features.—The islands of Japan appear to be of volcanic origin, and that part of the Pacific on which they rest is still intensely affected by volcanic action. Earthquakes occur very frequently in Japan, although certain parts of the country are exempt. The Japanese reckon that, on an average, some one of their cities is destroyed every seven years by this agency. Japan has been called the land of mountains; but though these are very numerous, and many of them volcanic, they are of moderate elevation, and rarely attain the limits of perpetual snow. The country generally is of moderate elevation, with fertile valleys, picturesque landscapes, and a coast indented with magnificent harbors; the soil is productive, rich in mineral wealth, and teeming with every variety of agricultural produce. The great volcanic mountain Wunsentake, on a promontory of Kiusiu, reaches to the line of perpetual snow, and is both feared and worshiped by the Japanese. The celebrated and sacred Fusiyama ("Rich Scholar Peak"), the Parnassus of Japan, is an extinct volcano, the highest peak of which reaches to the height of 14,177 feet. Springs, lakes, and rivers are numerous; but the last, being sand-choked and very impetuous, are valuable chiefly for the purposes of irrigation.

Our knowledge of *the climate* of Japan is yearly increasing. June, July, and Aug. are the months of rain, which sometimes descends in unceasing torrents. The months of Oct. and Nov. are the pleasantest and most genial of the twelve, when fine weather is enjoyed without the scorching heat of summer. The summers are very hot, and the winters in the northern parts almost Siberian; the thermometer rising to 96° in the shade in the former, and sinking to 18° below zero in the latter season. Alcock says: "The thermometer in the shade (during the summer) ranges from 70° to 85°, and averages 80° between the morning and the evening, while it is sometimes below 70° at night." Hurricanes and waterspouts are frequent; dense fogs hide the sun, sometimes for four or five days together; and about the change of the monsoons, typhoons, and equinoctial gales frequently sweep the Japanese seas.

Vegetable Productions.—In Hodgson's *Japan* will be found a systematic catalogue of Japanese flora by sir William Hooker. We can only mention a few of the most noteworthy trees and plants. Chestnut, oak (both deciduous and evergreen), pine, beech, elm, cherry, dwarf-oak, elder, sycamore, maple, cypress, and many other trees of familiar name abound. The evergreen oak and the maple are the finest of all Japanese trees. The grandest forests of pine, and oaks of prodigious size, grow in Yesso; but the *rhus vernicifera* or lacquer-tree, the *laurus camphora* or camphor-tree, the *broussonetia papyrifera* or paper-mulberry—the bark and young twigs of which are manufactured by the Japanese into paper—and the *rhus succedanea* or vegetable wax-tree of Japan, are among the remarkable and characteristic trees of the country. Bamboos, palms,

ASIA

British Miles
0 100 200 300 400 500 600 700 800 900 1000

Geographical Miles
0 100 200 300 400 500 600 700 800 900 1000

Longitude East of Greenwich

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including sago-palms, and 150 species of evergreen trees, likewise flourish. Thus, the vegetation of the tropics is strangely intermingled with that of the temperate or frigid zone; the tree-fern, bamboo, banana, and palm grow side by side with the pine, the oak, and the beech, and coniferæ in great variety. The camellia, the paulownia, and the chrysanthemum are conspicuous amongst its indigenous plants. Nymphæas and parnassia fill the lakes and morasses. The tobacco-plant, the tea-shrub, the potato, rice, wheat, barley, and maize are all cultivated. The flora of Japan bears a remarkable resemblance to that of the North American continent.

Agriculture is the chief occupation of the Japanese. They are very careful farmers, and their farms are models of order and neatness. They bestow great care upon manures, and thoroughly understand cropping and the rotation of crops. The cultivated land is chiefly a light friable loam of great fertility. It grows tea, cotton, rice (the staple production), wheat, maize, buckwheat, millet, potatoes, turnips, beans, and peas. The rice harvest commences in Oct. Wheat is sown in drills in Nov. and Dec., and reaped in May and June. Flails and winnowing-machines, similar to those used in England, are common.

Animals.—Wild animals scarcely exist in Japan, in consequence of the universal cultivation of the soil. A few wolves, foxes, and wild boars still roam in the n. of Nipon. Wild deer are protected by law. The principal domesticated animals are horses, of which there is an indigenous race; oxen and cows, used only as beasts of burden; and dogs, held in superstitious veneration by the people. Birds are very numerous, and include two kinds of pheasants, wild-fowls, herons, cranes, and many species common both to Europe and Asia. There are few reptiles; and of insects, white ants, winged grasshoppers, and several beautiful varieties of moth are conspicuous.

Mineralogy.—Japan is very rich in minerals. The gold mines of Matsumai and the n.e. part of Nambu have long been celebrated; but the n. of Nipon is, according to the Japanese, one continuous bed of gold, silver, and copper. Silver also comes from the islands to the w. of Matsumai from the province of Shanday, and from the islands in the vicinity of Neagata. The iron mines of Yesso are sealed to Europeans. Both lead and copper mines are worked within a few miles of Hakodadi. The sulphur of Yesso and the adjacent isles is almost inexhaustible, and of wonderful purity. In its abundant supply of coal, Japan resembles Great Britain; coal-beds extend from Nagasaki and Fizen to Yesso and Saghalien. Basalt, feldspar, green-stones, granites red and gray, rock-crystal, agate, carnelian, amber, scoria and pumice-stone, talc, alum, and other minerals are found in greater or less quantities.

Inhabitants.—Ethnologists have referred the Japanese to different types of mankind: Latham classifies them as Turanians, a tribe of the Asiatic peninsular stock; Pickering, as Malays; Prichard, as belonging to the same type as the Chinese; and in the narrative of the United States expedition, they are ranked as a branch of the Tartar family. Physically, the Japanese is distinguished by an oval head and face, rounded frontal bones, a high forehead, slightly oblique eyes—the irides of a brown-black color, the eyebrows heavy and arched. The complexion varies from a deep copper color to the fairness of western nations, but is more frequently of a light-olive tint. The expression of the face is mild and animated. The Japanese "are a people of great qualities and exaggerated defects. They are honest, ingenious, courteous, clean, frugal, animated by a strong love of knowledge, endowed with a wonderful capacity of imitation, with deep self-respect, and with a sentiment of personal honor far beyond what any other race has ever reached. But they are proud, absolute, revengeful, profoundly suspicious, hesitating, and mistrustful, and, in the lower classes, openly and radically immoral. Their organization (until lately) was purely military; war was the only occupation (with the exception of the priesthood) which was considered worthy of a man; agriculture was left to serfs; while commerce was regarded as degrading. The fighting-classes had the utmost contempt for trade, and the entire people were deficient in the commercial aptitudes." The town costume of the Japanese gentleman consists of a loose silk robe extending from the neck to the ankles, but gathered in at the waist, round which is fastened a girdle of brocaded silk. Over this is worn a loose, wide-sleeved jacket or spencer, decorated with the wearer's armorial device. A cylindrical cap made of bamboo and silk, white stockings, and neat straw sandals, complete the attire. Trousers are only worn by official persons on occasion of special ceremony. A head entirely shaven is the distinctive mark of priests and the higher class of medical practitioners; in others, the hair is shaved off about 3 in. in front, combed up from the back and sides, and glued into a tuft at the top of the head, where it is confined by pins of gold or tortoise-shell. The hair of the women is more abundant, but otherwise their dress very much resembles that of the men. In the country, a short cotton gown is often the only clothing, and the lower classes go almost in a state of nudity. The men are generally elaborately tattooed over the greater part of their bodies with figures of men and women, bright-blue dragons, lions, tigers, etc. The women have a mania for painting and powdering their skins.

Manners and Customs.—The most remarkable custom of the Japanese is that of *harri-kari* or *hara-kiru* (or *hara wo kiru*, i.e., "belly-cut"), a legalized mode of suicide, by making two cross-cuts on the abdomen with a sharp-pointed knife. This custom, according to some recent accounts, is now less frequent, and the ceremonies with which

it was once performed have become obsolete. There are still, however, professors of the art in most large cities. The curious custom of *nay-boen* or *naibun* consists "in ostentatious secrccy as regards events, or *incognito* in reference to persons." Well-known events are totally ignored, and individuality is unrecognized under shelter of the nay-boen privilege..

The social position of women is, in somc respects, morc favorable than in most pagan countries. The ladies of Japan, however, live in strict seclusion, and little is known about them. Female education is not neglected. Polygamy is not allowed, but the power of divorce is permitted to the husband by law. The laws against adultery on the part of the wife are severe, and death is the penalty, which may be inflicted by the husband. He, on the contrary, may takc as many concubines as he pleases or can afford. The marriage ceremony is an important part of social etiquette; the families of both bride and bridegroom meet and celebrate the event. Saki flows abundantly, and great feasting and hilarity prevail. When a maiden marrics, her teeth are blackened, her eyebrows plucked out, and artificial ugliness is henceforth cultivated to the greatest possible extent. The Chinese custon of affiancing children is followed by the upper classes, and aristocratic usage interdicts a personal interview to the bride and bridegroom previous to marriage; but this rule is now much relaxed. Prostitution is a legalized custom, and a father may sell his daughter, for this purpose, for a term of years; whilst the Japanese gentleman, notwithstanding his high notions of honor, oftcn chooses his wife from amongst the inmates of those houses of ill-fame, which are at once supported and controlled by government. The bath is a great institution in Japan, and forms a kind of people's parliament. It is the general custom throughout the country for men and women to bathe together, with a total absence of decorum, but without sense of immodesty. In Japan the social position of every man is fixed by his birth, and the line that separates class from class is not only clearly defined, but impassable. Daimios and saimios, priests and soldiers, are considered to belong to the higher classes, and in the others are included medical men, inferior government officials, merchants, retail dealers, and laborers. There are 8 classes of society, half of which belong to the upper, and the other half to thc lower ranks of society. Mcn of rank only can enter a city on horseback; but these distinctions will now be greatly modified, if they do not pass away altogether, with the double sovereignty, and the feudal power of the daimios. The ordinary vehicle in Japan is a description of palanquin; the common sort, made of bamboo, is called a *cango;* thc better kind, made of lacquered wood, a *norimon.* The Japanese manifest great regard for the dead. The ancestral tablet (*ici-pae*) is fashioned on the Chinese model, and is placed in the family shrine with the household gods. In a Japanese cemetery, the solid and elaborately carved granite monuments are beautiful specimens of architectural taste. Each body is buried in a sitting posture, with the hands folded in the attitude of devotion; and the coffins are all circular. The Japanese observe many holidays, and celebrate the opening of the year in the Chinese fashion. There are, too, many holidays of a religious character, but the great national festivals are 5 in number. The Japanese are a theater-loving people, and inveterate gamblers. They delight in wrestling—their national sport—perform wonderful feats in spinning tops, are very expcrt jugglers, and cxcel in archery. Fish and ricc are the staple food of the people, and tea and saki (a spirit distilled from rice) their beveragcs.

Government, Institutions, and Present Condition.—To understand something of the government and institutions of Japan, past and present, it will be necessary to glance at its history and political landmarks. Hcre we find an emperor, whose dynasty began to reign 2,532 years ago, or 660 B.C. Its founder, Zinmu, or Zen Mou, was contcmporary with Nebuchadnezzar; and in 1868, after a duration of 25 centuries, it threw off the oppression and decrepitude of 676 years, and in the person of Moutz Hito, the present mikado or emperor (the 122d of his race), entered upon a ncw and promising career. The principal landmarks of Japanese political history are briefly as follows: A time of anarchy and faction on the onc side, and a succession of feeblc sovereigns on the other, enabled Yoritomo, the shiogun or generalissimo (from *Ta-tsiang-kiun*, the Chinese term for "the great chief or commander of the army")—or tycoon (Chinese *Tai Koon*, i.c., "Great Lord"), as he is called in recent treaties—to usurp the supreme authority. This occurred in 1192 A.D.; but the creation of a shiogun by the mikado dates from 85 B.C. This high officer was subsequently known to Europeans as the temporal emperor, and to the mikado they assigned purely spiritual functions; but the Japanese themselves recognized one sovereign only, viz., the mikado, who held his court at Miako, while his rival in Yedo acted as real sovereign, at the safe distance of 300 m.; and the shiogunate became henceforward a permanent institution. It might now be said that the shiogun governed, but did not reign; while the mikado reigned, but did not govern; though three times a year he received the homage of his all-powerful subject. He even continued nominally the sole temporal emperor, though pensioned by the shiogun, and deprived of all real authority. In 1603 the shiogun Tokugawa Iyeyas (thc "illustrious") organized a government which sccured to the empire a pcace of 200 ycars. He founded likewise a permanent succession, and his descendants reigned at Yedo till 1868. His system was perfected by Iyemits, the third shiogun of the Tokugawa dynasty. It was his policy "to preserve unchanged thc condition of the native intelligence," "to pre-

vent the introduction of new ideas," and to effect this he not only banished foreigners, interdicted all intercourse with them, and extirpated Christianity, but introduced that "most rigid and cunningly devised system of espionage" that was in full activity at the time of the earl of Elgin's mission, as amusingly described by Mr. Oliphant. "This espionage," says a recent Japanese writer, "held every one in the community in dread and suspicion; not only the most powerful daimio felt its insidious influence, but the meanest retainer was subject to its sway; and the ignoble quality of deception, developing rapidly to a large extent, became at this time a national characteristic. The daimios, who at first enjoyed an honorable position as guests at the court of Yedo, were reduced to vassalage, and their families retained as hostages for the rendition of a biennial ceremonial of homage to the shiogun. Restrictions surrounded personages of this rank until, without special permission, they were not allowed to meet each other alone." In 1549 St. Francis Xavier introduced the Roman Catholic religion into Japan, and the Portuguese (who first landed in Japan in the year 1543) carried on a lucrative trade; but by-and-by the ruling powers took alarm, ordered away all foreigners, and interdicted Christianity (1624), believing that foreigners impoverished the country, while their religion struck at the root of the political and religious systems of Japan. The converts to that form of Christianity introduced by Xavier, were found to have pledged their allegiance to a foreign power; while their conduct is said to have been offensive towards the Sintu and Buddhist temples; so that in time they came to be regarded as a dangerous and anti-national class whose extirpation was essential to the well-being of the nation, and to the success of the political system then being organized or perfected by Iyemits. The Portuguese continued to frequent Japan till 1638, when they and their religion were finally expelled; Christianity was suppressed with every cruelty, and at the cost of some 50,000 lives; its professors were murdered, and the ports closed to foreign traffic. From this date the Japanese government maintained the most rigid policy of isolation. No foreign vessels might touch at Japanese ports under any pretense. Japanese sailors wrecked on any foreign shore were with difficulty permitted to return home; while the Dutch, locked up in their factory at Decima, might hold no communication with the mainland; and the people lived like frogs in a well, till 1853, when they were rudely awakened from their dream of peace and security by commodore Perry steaming into the harbor of Yokohama, with a squadron of U. S. war-vessels. He extorted a treaty from the frightened shiogun (March 31, 1854), and Japan, after a withdrawal of 216 years, entered once more the family of nations. Other countries slowly followed the example of the United States: Russia and the Netherlands in 1855; our own treaty followed in 1858; that with France in 1859; with Portugal in 1860; with Prussia and the Zollverein in 1861; with Switzerland in 1864; with Italy in 1866; and with Denmark in 1867. By these the seven Japanese ports of Yokohama, Nagasaki, Kanagawa, Niegata, Hiogo, Osaka, and Hakodadi have been opened to foreign commerce.

It will thus be seen that "the history of the empire of the Rising Sun is divisible into four distinct periods: the first, which ends with the landing of the Portuguese in 1543, is purely local; the second, which extends from 1543 to 1638, includes the story of St. Francis Xavier, the trade with Portugal, the persecutions, and the final expulsion of Europeans; the third, from 1638 to 1854, is distinguished by the Dutch monopoly, and the resolute exclusion of all foreigners; in the fourth, since 1854, Japan has once more become accessible to everybody.

In the Japan of 1854 we went back to Europe of the 12th c.—to the feudalism of England under the Plantagenets. An aristocratic caste of a few hundred nobles—the *daimios* or territorial princes of Japan (278 in number)—ruled large provinces with despotic and almost independent authority; their incomes reaching in one or two instances to £800,000. The shiogun gave deep offense, both to the daimios and the nation, by signing the Perry treaty at all; but especially by signing it without the sanction of the mikado, and for ten years a policy of assassination and deadly hatred to foreigners (whom the government could not protect) was carried out. This resulted in the two bombardments of Kagoshima Chioshiu, by the English and combined fleets, which opened the eyes of the Japanese to the power of the western nations, and awakened in their minds an intense desire to raise their country to an equality with them. A complete reaction in favor of the despised foreigners set in; and a desire for a strong central government—"the unification of the nation in the hands of the mikado"—who was urged by the most powerful of the daimios to suppress the shiogunate. The shiogun tendered his resignation; but, notwithstanding, a *coup d'état* appears to have been necessary for the complete extinction of the shiogun and his party. This was carried out in the winter of 1867–68. and after a short but sharp civil war of some six months' duration, the shiogun, with his partisans, were defeated, and the shiogunate (or "government under generalissimo") became a thing of the past. The daimios decided upon a grand act of self-sacrifice, and suppressed themselves. "Two hundred and seventy-eight military princes, possessing regal powers, vast wealth, and separate armies, abdicated from purely patriotic motives, the station which their families had held for twenty centuries!"

The Japanese government is now organized partly upon the French imperial system, and presents the following features: (1.) The mikado is supreme in temporal and spirit-

ual matters; (2.) An executive ministry divided into eight departments, viz.—foreign affairs, war, navy, finances, the interior, justice, public instruction, and ecclesiastical affairs; (3.) A senate (*sain*) of thirty members, and a council of state (*shoïn*), members unlimited; (4.) A "great council"—by which the government is really carried on—divided into three sections, viz., the center, composed of the prime minister, vice-prime minister, and five advisers; the right, which includes the ministers and vice-ministers of the eight departments; the left, formed entirely of the council of state, whose functions correspond to the French *conseil d'état*. All matters of high importance are decided by the great council and the mikado; but ordinary questions are left to the ministers, individually or in cabinet. An elective parliament is in contemplation. In 1871 the provincial administration was taken from the ex-daimios; and "prefects," with extensive powers, have been appointed, one to each of the 75 districts into which Japan is now divided.

Great progress is being made in finance, education, and public works, as well as the reconstruction of both army and navy. The public debt in 1878 was £72,645,140. There was a reserve fund of £7,806,300. In the budget, approved by the council for the year 1877–78, the total receipts amounted to £10,251,288, the expenditure just balancing the revenue. It was apportioned substantially as in the budget of 1872, the items of which, slightly condensed, are as follows:

RECEIPTS.

Rice, at 4½ dollars per koku	£11,444,556
Customs	298,350
Internal revenue (excise duties, etc.)	225,675
Miscellaneous	260,950
Total of receipts	£12,229,531

EXPENDITURE.

Imperial household	£113,050
Ministry of foreign affairs	112,200
Army	1,700,000
Navy	382,500
Colonization of Yeso	418,838
Justice	16,150
Education	73,312
Finance department (including cost of collecting taxes)	369,962
Public works	1,763,112
Municipal and provincial governments	1,386,987
Miscellaneous	452,412
Cost of manufacturing new bank-notes and of establishing the mint	210,375
Pensions to daimios and retainers	4,024,112
Balance of indemnity to European powers on the Simonosaki affair	318,750
Interest on the English loan	78,625
Total of expenditure	£11,420,385

Surplus, £809,146.

It will be seen that the bulk of the revenue is derived from the rice-tax, which is a very certain and productive impost; but as the principle of taxing the staple food of the people is radically wrong, and in this instance it weighs very unfairly upon the agricultural population (absorbing one-third of the entire annual crop), the newly inaugurated government is considering how gradually to diminish, and to replace it "by other duties less objectionable, and more in harmony with the spirit which now guides the country."

A ministry of instruction was created in 1871, and public primary schools are being established in towns. Light-houses, dock-yards, the buoying of harbors, and the construction of roads and railroads, have all been in progress during the last three years. A railway from Yedo to Yokohama has been made, and telegraphs are in course of erection. Newspapers and printing-presses have started into existence, and books are eagerly read. The government has engaged foreign professors of languages, and sent some 500 state students to Europe and America. The army has been armed and organized on the French model, and instructed by French officers. In 1876 the numbers of the active army were 35,380 men. On the war footing the total amounted to 50,240. The navy included then 21 vessels of all classes. The western calendar (excepting only the names of the month, which are represented by numbers has, by a recent decree, been adopted; and a national code of laws based on the Code Napoleon has been drawn up.

Religions of Japan.—The two principal and national religions of Japan are Sintuism or Sin-syuism (from *sin*, the gods, and *syu*, faith), the ancient creed of the country, and Buddhism, which is exotic and comparatively modern. The doctrine of Confucius, as held by the literati of China, has also considerable influence under the name of Sooto, or "the way or method of philosophers;" but it is less a religion than a system of morals and philosophy. 1. Sintuism. The hierarchy of Sin-syu is composed of the mikado, two ecclesiastical judges, together with the monks and priests. The chief

object of Sintu worship and belief is *Ten-sio dai-sin*, the great sun-goddess. The spiritual emperor, mikado, is held to be the direct descendant of the sun-goddess, and, as such, unites in his person all the attributes of the deity. The minor deities of Sintuism are very numerous, for every hero, warrior, patriot, or public benefactor receives a regular apotheosis and canonization at his death, and is henceforth reckoned among the *kami* or demi-gods. Every district has its patron saint or kami; and the shrines erected to the popular divinities are innumerable. Sintu temples are usually built on elevated ground and surrounded by groves; no idols are visible in them; but above and around, written sentences are inscribed. A mirror, as an emblem of the purity required in the worshipers, is placed on the altar. The chief doctrines of this indigenous religion of Japan are: 1. Inward purity of heart; 2. A religious abstinence from whatever makes a man impure; 3. A diligent observance of the solemn festival and holy days; 4. Pilgrimages to holy places; and 5. According to some, chastising and mortifying the body. The form of worship is simple: the worshipers first wash themselves in the font, pray opposite the mirror, throw a few cash into the money-box, and finish by striking a bell, to intimate that their religious duties are over.

2. In Japan, Buddhism, which was introduced 552 A.D., has been modified by its contact with Sintuism, with which it has to a certain extent amalgamated. No less than eight Buddhist sects exist in Japan. Buddhism has properly no priests, but here the monks appear to have assumed the functions of that order. Dr. Smith has given an interesting description of a Buddhist service he saw at one of the temples in that country (see his *Ten Weeks in Japan*, p. 34). "Amongst the services which I ever witnessed," he says, "I seldom beheld in a pagan country an assemblage of native worshipers so nearly approaching the appearance of a Christian assembly and the details of an ordinary Christian service." Amongst the more educated classes, the same skeptical indifference to the religious observances of the multitude that prevails in China is observed.

The Japanese Written Language.—The principle of duality, which pervades the life of the Japanese, extends to their mode of writing, for two distinct alphabets and kinds of writing are in use. There is, 1st, the ideographic system of Chinese hieroglyphic symbols, which dates from the 3d c., A.D.; and 2dly, the phonetic syllabarium, of more recent invention, consisting of 47 characters, and a few supplementary monosyllabic sounds. Prior to either of these, some antique form of writing, now consigned to oblivion, is supposed to have existed.

The phonetic alphabet, invented about the year 810 A.D., is known as the *hiragana* form of character. In process of time, this system was rendered more complex by the addition of variations, and this led, apparently, to the introduction of another and simpler alphabet, entirely without variants, and known as the *katagana* character. Both these phonetic systems are written in perpendicular columns. It is not a little remarkable that the Chinese ideographic symbols retain their ascendency over the indigenous alphabets, and are adopted almost exclusively for diplomatic documents and the higher class of books. In common life, the Chinese written language is in familiar and constant use.

There is no similarity whatever between the spoken languages of China and Japan; the latter—one of the softest tongues out of Italy—is not very difficult of acquisition, and is without the Chinese system of intonations; it is not monosyllabic, but what Dr. Latham calls agglutinate.

The *literature* of Japan is abundant and various, and includes works on history and science, encyclopædias, poetry, prose fiction, and translations of European works. Besides original writings, the Japanese have adopted the whole circle of Chinese Confucian literature; the Chinese classics, indeed, form the basis of their literature, system of ethics, and type of thought.

In the *mechanical arts*, the Japanese have attained to great excellence, especially in metallurgy, and in the manufacture of porcelain, lacquer ware, and silk fabrics; indeed, in some of these departments, works of art are produced, so exquisite in design and execution as to more than rival the best products of Europe. The Japanese have long understood lithochrome-printing. Their drawings of animals and figures generally are wonderfully graphic, free, and true to nature; but in landscapes they fail, from erroneous perspective; and of the art of painting in oils they are entirely ignorant.

The *commercial intercourse* of Japan is now carried on mostly, with Great Britain, and the United States of America.

The following table shows the extent of the trade by exhibiting the value of the total exports from Japan to Great Britain, and of the total imports of British and Irish produce and manufactures into Japan during the five years 1872–76.

Years.	Exports from Japan to Great Britain.	Imports of British Home Produce into Japan.
1872	£184,342	£1,961,327
1873	561,390	1,680,017
1874	537,136	1,282,899
1875	377,791	2,460,227
1876	657,145	2,032,685

The principal item of export from Japan to Great Britain is raw silk, valued in 1876 at £432,234; next in value come tobacco, wax, and rice. The staple British import is cotton goods, valued in 1876 at £1,328,461; also woolen fabrics and iron.

Upwards of 80 m. of railway have been opened for traffic. The Japanese telegraph system extends over 1750 miles. In 1876 the post-office, established in 1871, carried 30,312,100 letters, and had a revenue of £119,040. The basis of the new Japanese money system is the *yen*, equal to the American trade-dollar.

For the latest information on Japan, see Adams, *History of Japan* (Lond. 1874); Mossman, *New Japan* (Lond. 1873); Arinori Mori, *Education in Japan* (New York, 1873); article "Japan," *Blackwood's Magazine*, Sept., 1872; *The Merchant's Handbook*, by W. A. Browne (Lond. 1872); *Japan*, being a sketch of the history, government, and officers of the empire (Lond. 1869); *Japan in our Day*, by B. Taylor (New York, 1871); *The Statesman's Year-book*, by F. Martin (Lond. 1878): and for general reference, see *The Capital of the Tycoon*, by sir Rutherford Alcock, K.C.B., etc. (Lond. 1863); *A Residence at Nagasaki and Hakodati in* 1859–60, by C. P. Hodgson (Lond. 1861); *First Elements of Japanese Grammar*, etc., by R. Alcock, esq.: *Narrative of the Earl of Elgin's Mission to China and Japan in the years* 1857, 1858, and 1859, by Lawrence Oliphant (Lond. 1859); *The History of Japan*, by Engelbert Kämpfer, M.D. (Lond. 1727).

*JAPAN (*ante*). Native name Dai Nippon, or Nihon, from *ni*, sun, *hon*, root or rising; first bestowed either by the Coreans or the inhabitants of the south-western provinces—which were first peopled—and found in the native literature as early as A.D. 670. The Japanese empire comprises Chishima (Kurile islands), Yezo ("Jesso"), Hondo (Main island), Kiushiu (nine provinces), Shikoku (four provinces), the Riu Kiu (Loochoo) islands, and the islands lying off the western and eastern coasts, including the Bonin group—about 4,000 in all. From ancient times the empire has been divided into *do*, or circuits, after the Corean fashion, named as follows: "The home provinces," or Go Kinai, surrounding the *miako*, or capital, Kioto; Tokaido, east-sea circuit; Tozando, eastern-mountain circuit; Hokurikudo, northern-land circuit; Sanindo, mountain-back circuit; Sanyodo, mountain-front circuit; Nankaido, southern-sea circuit; Saikaido, western-sea circuit; Hokkaido, northern-sea circuit. These terms correspond to our eastern states, middle states, etc. In 1868 there were 84 *shiu*, or provinces, and 717 *kori*, or districts, each of the former having a purely native and a partly Chinese name, just as the eastern states are called "New England." Thus, Echizen is also called Esshiu, and Kaga, Kashiu. In 1875 the empire was divided into 38 kens, or prefectures, governed by *rei*, or prefects, appointed from Tokio; with 3 imperial cities, or *fu*—Tokio, Ozaka, and Kioto—governed by *chiji*, or mayors. Yezo and Chishima are under the Kai Taku Shi, a special department. The official census of 1872, and again of 1874, gave Japan a population of nearly 33½ millions. The actual area of cultivated land was: rice fields, 5,585,900 acres; of all other fields, 3,817,300 acres, on which the government tax collected was $46,537,265. The total value of productions from agriculture, forests, and fisheries was $276,303,903; of manufactures, including tea, tobacco, and all natural productions requiring manipulation, $147,602,026; of mines and quarries, $4,762,387; grand total, $428,668,316. The foreign trade of Japan for the year ending Dec. 31, 1878, was: imports, $33,334,392; exports, $26,259,419; total, $59,593,811, of which $42,104,221 was shipped at Yokohama: 838 ships and 748,872 tons were distributed under the following flags: British, 487 ships and 417,691 tons; America, 180 ships and 212,266 tons; the others in order being German, French, Swedish, Danish, etc. In 1878, 2,477 Europeans and Americans resided in Japan; 1067 being British, 479 Americans, 300 Germans, 278 French, 105 Dutch, 95 Portuguese, and 209 of various countries, besides 3,028 Chinese. 1860–1878 Japan had sold to foreign countries produce amounting to $300,109,872, and received in exchange foreign merchandise amounting to $323,027,581. American imports consist chiefly of cotton and woolen goods, machinery, metals, arms and ammunition, "notions," and petroleum, the latter article amounting in 1878 to $1,856,881. Besides sailing vessels, two American steam lines ply between California and Japan. Nearly all the tea raised in Japan and exported is consumed in the United States. The chief exports are silk and silk-worms' eggs, tea, copper, tobacco, wax, camphor, coal, dried fish, rice, porcelain, lacquer; and other articles made by hand. The present internal and external condition of Japan can be best understood from a brief outline of the history of this island empire, whose development since 1868 has been one of the marvels of the century.—It is now well settled by students in comparative philology of the languages of Japan and Corea that the two tongues are closely affiliated, and that ethnically the Coreans are the nearest congeners of the Japanese. The ancient immigrants from the n. Asiatic mainland coming to the Japan archipelago found an aboriginal race, whose descendants are probably the Ainos of to-day, though in Kiushiu were some inhabitants of Malay extraction. The dominant race had their seat in Yamato, one of the central provinces near Kioto, and ruled the tribes subdued by them according to a rude feudal system, the suzerain of the tribe chiefs being the mikado. In the 5th c. the rudiments of Chinese-Corean civilization were introduced from Corea, with letters, literature, and the Confucian classics. In 552 A.D. Buddhist missionaries arrived from Corea. In the 8th c. the Chinese centralized system of government was copied by the Japanese, and ancient feudalism gave way to eight ministries or boards of government, the mikado

sending out governors to the provinces from the miako or capital at Nara, and from 794 A.D. at Kioto. The dai jo kuan, or great council of the great government, superintended the eight boards, and was presided over by the senior premier, or dai jo dai jin (great minister of the great government), with three junior prime ministers, or *sa*, *u*, and *nai*, dai jin, or left, right, and inner, the mikado being supreme over all. From the most ancient times the mikado has ever been the central figure in Japanese politics, and though rival generals, ambitious premiers, and usurping military officials, called shoguns, or, since 1854, tycoons, have held at times immense power, and though to foreign eyes they have seemed to be "emperors," yet there never was but one emperor in Japan, and he was the mikado. The tycoon was never in rank or fact anything but a military commander. There have been four lines or families of shoguns ("tycoons"), the Minamoto (1192–1219), the Hojo (1219–1333), the Ashikaga (1333–1573), the Tokugawa (1603–1868), but there has been only one dynasty of mikados—an imperial family having no names except the personal cognomen of each ruler. The line of mikados is the oldest dynasty in the world, the present sovereign, Mutsuhito, being the 133d of the line. The term mikado means great gate (similar to the terms sublime porte, pharaoh, etc.) or august place. In the 133 names on the list, none is repeated, though the same mikado has in several instances reigned twice. Nine of the line were females. Succession to the throne is not always to the eldest son, but to the nominee of the mikado among his children, or nearest relatives, or of the imperial household. The cadet families and offspring of the mikado not eligible to the throne form the court nobility called the kuge. Among the most ancient families were the Taira, Minamoto, and Fujiwara, whose descendants are still numerous. The two former increased to military clans, which, after two centuries of aspiring rivalry, finally came to blows in Kioto in 1156. At first the Taira (or Hei) family was in the ascendant, but in 1184 the Minamoto (or Gen), after repeated land battles, nearly annihilated the Taira in a great naval battle off Shimonoseki (see SHIMONOSEKI). Yoritomo, the head of the Minamoto, rebuilt Kamakura, a town near the modern Yokohama, in great splendor, and in 1192 received from the mikado the title of sei-i tai shogun—great rebel, subduing general. After the desinence of the Minamoto family in 1219, the Hojo family held the military power, which had now become a usurpation, the mikado having the name but not the actuality of power. The feudal system, which had been growing into form under Yoritomo, received immense development under the Ashikagas (who succeeded the Hojo), since they made the military magistracies, first established by Yoritomo, hereditary in the families of their own nominees. Nobunaga overthrew the Ashikagas, and partially subdued the empire, which had been long in a state of anarchy, in the name of the mikado. Nobunaga's work was taken up and finished by Hideyoshi, who, after unifying all Japan, which had been split into feudal fractions, pareeled out his fiefs to military chieftains, without regard to the sovereign, by titles granted in his own name. In 1586, having attained to the office of dai jo dai jin, he retired in 1591 in favor of his son, and hence was called the taikō (great emeritus), or popularly, Taiko-sama. He sent an army of invasion to Corea (see COREA), which was withdrawn at his death in 1597. Iyeyasu, the founder of the Tokugawa line, succeeded Hideyoshi after the decisive battle of Sekigahara, and followed out the precedent of Taiko-sama in bestowing fiefs in his own name. Since he ruled the country with a firm hand, and all men saw in him "the man on horseback" that could keep in check by his iron hand the turbulent daimios, the mikado bestowed on him the title of sei-i tai shogun in 1603. Establishing his seat of government at Yedo, this once obscure village became a colossal city within two generations. Kioto was the city of the mikado, the throne, and the imperial court. Yedo was the city of camps. Kioto was the source of all power; Yedo was the place of its execution. Fifteen Tokugawa shoguns ruled from 1603 to 1868. The first shogun ever styled "tycoon" in official documents was Iyesada (1853–58), under whom the treaty with the United States was made. The wondrous growth of events whose fruits have been the revolution of 1868, and the radical alteration of the foreign policy of the empire, had its roots in the revival of the study of the ancient history, language, and religion, beginning over 160 years ago. The incoercible reverence of the people for the mikado, the long-slumbering hatred of the usurping Tokugawas among the subject daimios, the opening of the eyes of scholars to the fact that the Yedo military rulers were usurpers, and that they had further insulted the mikado by signing a treaty in which "the land of the gods" was opened to foreigners, and the hateful title of tycoon (anciently a title of the mikado) officially used by the servant of the sovereign, roused the nation to a pitch of wrath that finally broke out in the *coup d'état* in Kioto, Jan. 3, 1868, and the battle of Fushimi, Jan. 27. By these two measures the office of shogun was abolished, the Tokugawas took their true places as vassals, and the ancient government, in vogue from the 8th to the 12th c., was restored, the mikado being sole ruler, aided by the dai jo kuan and the eight boards of government. The national capital was changed to Yedo, henceforward named Tokio, and officially and popularly so-called (except in unrevised cyclopædias and foreign documents, in which precedent and not fact is followed). Finding it impossible to drive out the foreigners, as many of the patriots desired, the new government ratified the treaties, and thenceforward followed in quick succession those radical changes in the national policy which make Japan the wonder of nations. The feudal system, after seven centuries' existence, was abolished in Aug., 1871, and the daimios made to

reside as pensioners in Tokio. The mikado appeared in public as the active patron of the dock-yards, light-houses, hospitals, schools, colleges, railways, and telegraphs, which were rapidly established. An embassy headed by the u dai jin Iwakura and four cabinet ministers, with over fifty attachés, started on a tour around the world, accredited to the treaty powers, with the special object of getting the extra-territoriality clause removed from the treaties, and to study the methods and resources of modern civilization. The embassy was absent nearly two years, and cost Japan $750,000. In 1872 Japan gave the death-blow to the "coolie" trade by releasing the Macao Chinamen from the Peruvian ship *Maria Luz.* Two legations and three consulates were established abroad. These diplomatic foreign establishments of Japan now number about twenty. The newspaper press was established, there being now over 200 printed in the empire. The national banking and postal system were founded on the American model; 200 national banks exist in Japan from the Riu Kiu islands to Yezo. In 1877, 38,321,971 letters, postal cards, and newspapers were carried in the Japanese mails. Japan is now a member of the international postal union, and her stamps and cards are exchangeable in all countries of that union. The post-offices for foreigners at her treaty ports are also under her charge. Postal savings-banks are numerous and well patronized. A mercantile marine training school and a marine board of examination and license of competent masters, engineers, and pilots is connected with the postal department, which owns a fine fleet of steamers. The mercantile marine of Japan consists of about 100 steamers and 5,000 junks. The national navy had (1879) 5 ironclads built in England, and 10 wooden vessels, with a number of dispatch boats, etc. The naval department is equipped in first-class style for theoretical and practical work, with colleges, schools, bureaus of hydrography, dock-yards, stations, etc. The naval force, including marines, was, '79, 7,000 men. The army, on a peace footing consists of 31,680 men, and on a war footing, 50,250, of all arms of the service. The soldiery and peasantry, who since the middle ages had been separated, were amalgamated by the military law of Dec. 28, 1872, by which 6,000,000 males are enrolled as possible soldiers. The military resources of the mikado's government have three times been put to the test by revolts in Kiushiu headed by men dissatisfied with the policy of the government. The great Satsuma rebellion led by Saigo Takamori, which began Feb. 1, 1877, was put down only after seven months of hard fighting; 39,760 rebel troops were engaged, of whom 3,533 were killed, and 4,344 wounded; the imperialists losing probably 10,000 in killed and wounded, out of a force engaged of over 50,000. This civil war greatly added to the national debt, which now amounts to $349,826,662, a large part of which accrued by the assumption of the daimio's debts, and by the cashing of the hereditary pensions of the samurai or gentry. In almost all the features of modern national life and civilization, Japan is, in outward form at least, rapidly coming abreast with most of the Christian nations. The presence, operation, and wonderful success of Christianity in its three forms, Greek, Roman, and Protestant, in Japan, together with the moral reforms instigated and carried out by the government and individuals, bid fair to infuse within the ribs of outer appearance the real life and soul of genuine Christian civilization. For further details, and the exposition of ideas, facts, and principles as embodied in the lives of men and the history of places, see the various titles in this work which refer to Japanese subjects. Besides the standard works on Japan written before the recent opening of the country to foreign life, see *Japan*, by Walter Dickson; *History of Japan*, by F. O. Adams; *The Mikado's Empire*, by W. E. Griffis; *Progressive Japan*, by gen. Legendre. On Japanese art, see Jarves's *A Glimpse at the Art of Japan; Art and Art Industries of Japan*, by sir R. Alcock; *A Grammar of Japanese Ornaments.* The best works on the language are: Grammars—S. R. Brown's *Colloquial Japanese;* Astor's *Grammar of the Written Language;* Satou's *Kuaiwa Hen;* Brinckley's *Self-Instruction for Japanese;* Hoffman's *Japanese Grammar.* Dictionaries—J. C. Hepburn, LL.D., *Japanese-English and English-Japanese*, and pocket edition of same; *English Japanese Dictionary*—by Ernest Satou and M. Ishibashi. See *Supp.*, page 884.

JAPAN CLOVER, a leguminous plant, *Lespedeza striata*, a native of China and Japan, brought to the United States probably about 1850, and has spread with great rapidity in various parts of the southern states, especially on light, sandy soils. It is a perennial plant from a foot to 20 in. high, bearing trifoliate leaves, in the axils of which are small flowers which develop into a small one-seeded pod. It is much liked by cattle, especially the young plants; but the old plants contain considerable woody fiber. Agriculturists differ in opinion as to its merits as a fodder, but the weight of testimony is in its favor.

JAPANNING is the art of giving a coating of varnish and other materials to certain manufactures, by which a resemblance is produced to the beautiful lacquered wares of Japan and China. The term is more generally applied in this country to metal works upon which a dark-colored varnish is applied with heat, but the process is quite as extensively applied to papier-mâché works. See LACQUERING. The japanned works of our manufactures are chiefly iron and tin, such as coal-boxes, tin canisters, and other articles, which are thereby made more ornamental, and are at the same time protected from rust.

The japanning material consists of anime or copal varnish, alone, or mixed with

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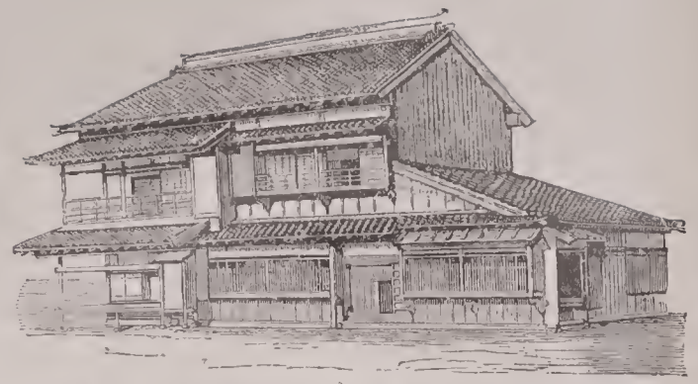
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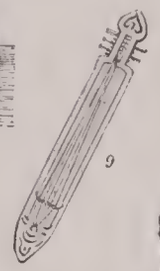
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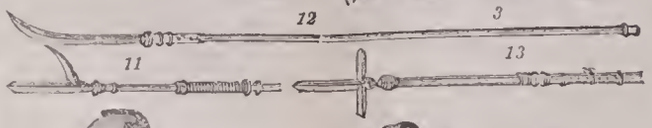
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JAPAN.—1. Japanese temple. 2. House of Japanese aristocrat. 3. Unmarried woman. 4. Maga-tama (precious stones). 5. Japanese town-house. 6. Japanese farmer. 7. The same in winter costume. 8. Japanese court-dress. 9. Aino guitar. 10. Aino box. 11, 12, 13. Lance-heads. 14, 15. People of the middle classes. 16, 17. Men. 18. Women in full dress. 19. Boy. 20. Girl. 21. Japanese middle-class family at noon-day meal. 22. Interior of the temple of the 500 genii. 23. Bear-skin boot of an ancient Japanese knight. 24, 25. Curved precious stones. 26. Howling arrow. 27, 28, 29, 30, 35. Very ancient Japanese stone arrow-heads, etc. 31, 32, 34. Earthenware vessels in which the Magatamas (4, 24, 25) are found. 33. Ancient Japanese armor (of Dai-sjô).

ivory-black, to produce a black japan; or with asphalt, to produce a dark or light brown, according to the quantity used. For very cheap tinned wares, a single coating is all that is usually given. After being varnished, they are put into a heated oven for a time, after which they are ready for use; but in the case of more valuable articles, such as the handsome coal-boxes of iron which are now extensively manufactured, and which are still further ornamented by gilding and painting, several coats of black japan varnish are applied, each being dried in the oven previous to the application of the next, so that a coating of sufficient substance to bear polishing is thus obtained. Rotten-stone and Tripoli powder are used by the polisher, and a beautiful surface is obtained, in no respect inferior to that of polished jet. The polishing powders are at first applied with leather, but the finishing is done by women, who use the palms of their hands only, with small quantities of Tripoli.

The beautiful black surface thus produced is admirably adapted for decoration by gilding; and much taste is now shown in these matters by our manufacturers, who surpass all others in the high finish and cheapness of japanned wares. Under LACQUERING will be given the Japanese process, which is thus imitated on metal, under the name of japanning, in Europe.

JA'PHETH, in Heb. *Yepheth*, a word apparently derived in Genesis from *pathah*, "to open," trop. perhaps "to stretch forth," and hence supposed to mean "widely dispersed." Gesenius and other scholars, however, suggest a derivation from *yaphah*, "to be fair" or "beautiful," in allusion to the fair complexions of the Japhetic or European races. According to the Hebrew record Japheth was the second son of Noah, whose descendants peopled first the n. and w. of Asia, after which they proceeded to occupy "the isles of the Gentiles," i.e., all the region about the Levant and the Ægean sea. Japheth has at a later period, in Talmud and Midrash—not merely from its similarity to the Greek name Japetus, the supposed founder of the human race—been used as a typical expression for "Greek." Cf. *Meg.* 71, *b.; Ber. R.* 40, *b.* etc.

JAPU'RA, or CAQUETA, a river of South America, and tributary of the Amazon, rises in the Granadian Andes, in lat. 1° 26′ n., long. 76° 50′ w., and joins the Amazon about 65° 50′ e. long. Its entire length is upwards of 1000 m.; the navigation is impeded by cataracts.

JAPYG'IA. See APULIA, *ante.*

JARGONIZ'ING is a phenomenon observed chiefly in acute mania; it consists in the utterance of uncouth and unintelligible sounds, which may resemble articulate words, or be little more than harsh ejaculations and bellowings. This symptom must not be confounded with those imitations of foreign tongues or provincial idioms, or the perversions of the faculty of language characteristic of mania and other forms of alienation, as these sounds are not intended to be, nor to appear, the vehicles of thought or manifestations of feeling. They stand in the same relation to the excitement and violence as the rapid motion, the furious gesticulation, and the tendency to injure and destroy everything that is seemly and harmonious. The tone in which they are uttered is generally harsh and defiant, because intense passion thrills through every muscle, through those of the vocal apparatus as well as of the arm raised to strike. Jargonizing is, in all probability, involuntary. It occurs at the commencement or crisis of mania, when the power to control the ideas and to regulate motion is most impaired. It may, however, be the result of volition, so far as that the individual desires and determines to speak, but fails from the rapidity or intensity of his emotions to call into action, and co-ordinate the organs engaged in articulation. Such utterances may be heard in soliloquy, if the phrase may be used, and during sleep. The feature has been accepted as pathognomic of mania. It has, however, been noticed in the delirium of certain stages of fever and of drunkenness, which are mental states depending upon blood-poisons. During periods of profound abstraction, similar sounds are said to have proceeded from the lips of sane and healthy men. In all these instances the natural operation of the will would appear to be enfeebled or suspended.

JARNAC, BATTLE OF, was fought at the town of that name, in the department of Charente, France, March 13, 1569, between 26,000 Catholics under the duke of Anjou, afterwards Henri III., and 15,000 Huguenots under Louis prince of Condé. The latter were completely routed. See CONDÉ.

JA'ROSLAV, GOVERNMENT OF, one of the central provinces of European Russia; area, about 14,000 sq.m.; pop. in 1880, 1,052,000. The soil is generally not fertile; it hardly supplies the wants of the inhabitants, and forces them to be industrious, so that the province furnishes nearly the whole of Russia with the best carpenters, masons, smiths, etc. The staple industry is dressing, spinning, and weaving flax, which occupies more than 25,000 hands, mostly near Jaroslav, Uglitch, and Velikoe-Selo. In the northern districts of Mologa and Poshekhonje the whole population of many villages manufacture nails, springs, and other articles of hardware. The inhabitants of the Rostof district have the reputation of being the best kitchen-gardeners and fowl-breeders of the empire. The Volga crosses the government from w. to e., and gives a special impulse to its industry. The inhabitants are remarkably handsome both as to form and feature. The government is divided into nine districts.

JAROSLAV (pron. Yaroslaf), capital of the government of that name, in European Russia, is a large and fine t., situated on the right banks of the Volga and its affluent, the Kotorosl, in lat. 57° 37′ n., long. 39° 53′ e., at a distance of 164 m. from Moscow. It is one of the most ancient Russian towns, and is said to have been founded by Jaroslaw the great in the 10th century. During the feudal period it was the seat of powerful feudal princes, and several times suffered from the invasions of the Mongols. The town has a vast *gostinoidvor*, or market-place, nearly as lively as that of Moscow, and a quay on the Volga, about 2 m. long. Though possessing large stores of linen fabrics, flax, iron, flour, and grain, Jaroslav is but a second-rate commercial place on the Volga, the principal trade being concentrated at Rybinsk, 54 m. up the river, and at Rostof. Chemical works, principally of white lead and minium, constitute a sort of specialty of the town and its staple industry; next come several tanneries, extensive flour-mills on the Kotorosl, and a recently built cotton-mill of 40,000 spindles. The once celebrated silk, and especially linen and damask factories, are at present on the decline. The population of Jaroslav in 1880 amounted to 30,300 inhabitants, and is constantly increasing with the wealth of the town, owing to the development of steam-navigation on the Volga and the Kama. Jaroslav possesses a law college, founded in 1805.

JARROW, or YARROW, a t. in the co. of Durham, Eng., situated on the Tyne, and of importance for its manufactories and ship-yards; pop. 18,179. The old church of St. Paul possesses a chair which is said to have been used by the venerable Bede, who was buried in the churchyard, although later his bones were removed to Durham, and placed in the same coffin with those of St. Cuthbert.

JARVES, JAMES JACKSON, b. Mass., 1818; educated in Boston, but unable to go through a university course on account of impaired eye-sight. Having been appointed U. S. consul to the Sandwich islands, he resided at Honolulu for a number of years, and established the first newspaper, the *Polynesia*, ever published there. He made an extensive tour through California, Mexico, and Central America, and also visited Europe. He did not, however, leave the Sandwich islands permanently until 1848. In the mean time he published several works which attracted attention, being written in a free and graphic style, while conveying much interesting information. These were: *History of the Sandwich Islands*, 1843; *Scenes and Scenery of the Sandwich Islands*, 1844; *Scenes and Scenery in California*, 1844. He also published, in 1855, *Parisian Sights and French Principles*, a series of brilliant and characteristic sketches. Mr. Jarves's *Art Hints*, which he afterwards enlarged and republished as *Art Studies*, was the first of his contributions to the literature of the fine arts. Having devoted himself to the collection of paintings illustrating the early schools of art in Europe, in a sequence, he was successful in bringing together a large number of fairly illustrative works, beginning with the Byzantine and reaching down through the middle age Italian, and the later French, Flemish, and Spanish schools. This collection, or such examples from it as were not privately disposed of, was deposited in the fine art gallery of Yale college. Since 1862 Mr. Jarves has resided in Florence, where he is recognized as a keen, skillful, and experienced art critic. His later publications have been the *Art Idea* and *Art Thoughts*

JARVIS, ABRAHAM, D.D., 1739–1813; graduated at Yale, and was ordained in England by the bishop of Carlisle in 1764, becoming soon afterwards rector of Christ church, Middletown, Conn. He succeeded bishop Seabury as bishop of Connecticut, 1803. His work was important in the early history of the Protestant Episcopal church in Connecticut.

JARVIS, EDWARD, b. Mass. 1803, graduated at Harvard university. He was educated for the medical profession, and practiced for many years in Dorchester, Mass. He interested himself in the collection of vital statistics, and has written reports and monographs on various departments of this subject, among which are *Physiology and Health; Elementary Physiology; Reports on the Number and Condition of the Insane and Idiots in Mass.* He was for many years president of the American statistical association.

JARVIS, JOHN WESLEY, 1780–1840; b. England; was nephew of John Wesley, who took charge of him in infancy, on account of his father's frequent and prolonged absences, as a sea-faring man. At the age of 5 he accompanied his father on a voyage to America, and was left by him in Philadelphia. While obtaining a very meager education, he displayed at an early age remarkable talent for drawing, which decided his future career. He worked as an engraver in New York, painting profiles on glass in his spare time, and eventually became successful and popular as a portrait-painter in oil. He painted portraits of Hull, Perry, Bainbridge, Robert Morris, and other prominent men of his time, which are now in the city hall, New York, and the gallery of the New York historical society. He painted also in New Orleans and other southern cities, gaining great popularity, which would have become an established reputation but for his convivial and irregular habits.

JARVIS, SAMUEL FARMAR, D.D., LL.D., 1786–1851, son of bishop Abraham Jarvis. He graduated at Yale, was ordained 1810, and became a priest in the following year, and rector of St. James's church, New York, in 1813. He was also professor of biblical criti cism in the General theological seminary of the Protestant Episcopal church. He removed to Boston in 1820, where he was rector of St. Paul's church for six years, at the end of

which time he traveled in Europe, visiting Italy, and remaining for some years in that country. He was a student of the eastern languages, and upon his return from Europe, accepted the chair of oriental literature, in Trinity college, Hartford. He was appointed historiographer of the American Episcopal church in 1838, and published *A Chronological Introduction to the History of the Church.* He wrote also, *No Union with Rome; The Church of the Redeemed; Sermons on Prophecy;* and *A Discourse on the Religion of the Indian Tribes of North America.*

JASHER, Book of (Heb. *Sepher ha-yashar*, "the book of the upright;" translated by the LXX. *Biblion tou Euthous*, and by the vulgate, *Liber Justorum;* but the Peshito [Syriac version] has *Sepher Hashir*, "Book of Praises or Hymns"), is one of the lost books of the ancient Hebrews, which is quoted twice (Joshua x. 13; 2 Samuel i. 18). Regarding its character and contents, there has been much speculation, Talmudic and later Jewish authorities identified it variously with Genesis (sometimes called "the Book of the Upright"), Deuteronomy, Judges, etc., to all which notions there is the obvious and fatal objection that the two quotations from it which survive are not to be found in any of these books, and could not possibly be found in the first two, as they refer to incidents which occurred at a subsequent period in the national history. The conjecture of the Syriac and Arabic translators has been adopted by Dr. Lowth, Herder, and other scholars, viz., that the book of Jasher was a collection of national ballads—a Hebrew minstrelsy, in short—recording the warlike deeds of the national heroes, or singing the praises of otherwise celebrated men. Gesenius is inclined to adopt the same view, and suggests that it may have acquired its name, "the Book of the Upright," from having been written chiefly in praise of upright men. Donaldson, in an ingenious work, *Jashar, or Fragmenta Archetypi, Carminum Hebraicorum in Masorethico Veteris Testamenti Textu passim tessellata*, contends for its being a composition of the age of Solomon, and a work of Nathan and Gad. He conceives that it originated in the desire of the more religious of the community to possess a record of the national history which should chiefly set forth the righteousness of the true Hebrews, and he attempts to extract from the so-called canonical books of the Old Testament such passages as he believed to have originally formed part of it. It must be added, however, that Dr. Donaldson's theory has met with little favor either from the mass of German scholars or from the few in England who are competent to consider the question.

JASMIN, Jacques, the most eminent modern patois poet of France, and, in the words of his ardent admirers, "the last of the troubadours," was b. at Agen in 1798. He has given in his *Soubenis* a humorous account of his early life. According to it, he was of very humble birth, and was set to learn the trade of a hair-dresser, which agreed well with that of poet, as he himself says, because both are a kind of head-work. His poetry is full of beauty and power; the pathos of his serious, and the wit of his comic pieces, are unequaled, and both have been received with enthusiasm in France and other parts of Europe. He was made a chevalier of the legion of honor in 1846. Jasmin's principal works are *Me cal Mouri* (1825); *Lou Charibari* (The Charivari, 1825), a comic poem; *L'Abuglo de Castel-Cuille* (The Blind Youth of Castel-Cuille, 1836), translated by Longfellow; and *Las Papillotos de Jasmin* (The Curls of Jasmin), of which the first part appeared 1835, and the second 1843. He died at his native town in 1864.

JASMINE, or Jessamine, *Jasminum*, a genus of plants of the natural order *jasminaceæ*. This order is allied to *oleaceæ*, and contains about 100 species of shrubs, some of them climbing, and many of them having exquisitely fragrant flowers. They are chiefly natives of the warm parts of Asia. Many belong to the genus jasmine, which has its calyx and corolla each 5 or 8-cleft, two stamens attached to and included within the tube of the corolla, and a two-lobed berry, one of the lobes generally abortive. The name jasmine is from the Arabic *yasmeen*. The Common Jasmine (*J. officinale*) is a native of the s. of Asia, but now naturalized in the s. of Europe, and as far north as the Tyrol and Switzerland. In more northern regions, it is much cultivated in gardens, but does not easily endure very severe winters. It is a shrub from 6 to 10 ft. high, with evergreen pinnate leaves, the terminal leaflet the largest, and very fragrant white flowers. The flowers were formerly employed in medicine, for strengthening the nervous system, but are now only used for preparing *oil of jasmine*, a delicious perfume. The commercial oil of jasmine, however, is not the pure essential oil, but merely oil of ben flavored with it, and is prepared by placing layers of the flowers alternately with layers of cotton soaked in oil of ben.—*J. grandiflorum*, a native of the East Indies, has flowers still more fragrant, from which, and from those of *J. sambac*, oil of jasmine is also made. The flowers of *J. sambac* are often scattered about in houses and temples in the East Indies, to diffuse their fragrance.—Several other species, some with erect, and some with twining stems, are not uncommon in gardens and green-houses. Some have white, and some have yellow flowers.—Oil of jasmine cannot be obtained from jasmine flowers by distillation.

JASMINE, or Jessamine (*ante*), one of the finest green-house species of jasmine is the *J. grandiflorum*, called in Europe Malabar jasmine, and in America Catalonian jasmine, easily trained upon trellises, and producing very fragrant flowers, with a pinkish tinge on the exterior, from which the oil may be obtained by the process of fatty absorption The hardiest species is *J. nudiflorum*, whose yellow flowers appear early in the

spring, but they are devoid of odor. One of the most fragrant species is the *J. odoratissimum*, which bears yellow flowers. The *J. sambac*, of which the florists have several varieties, is a very fragrant species, much sought for by bouquet makers. The jasmines are propagated by cuttings, in the manner of other green-house shrubs. The leaves of the *J. floribundum* are used in Abyssinia as a remedy for tape-worm.

JASMINE, or JESSAMINE, CAPE, a name popularly applied to plants belonging to the genus *Gardenia*, not related to the true jasmines. They belong to the madder family (*rubiaceæ*), and are tropical and sub-tropical shrubs. The genus was named by Ellis for Dr. Garden of Charleston, S. C., who was a correspondent of Linnæus. The best known species is *G. florida*, brought to England from China (not from the cape) in 1754. A double variety is a very popular greenhouse plant, and is common in the southern states as a hardy out-door plant. It bears a large, oblong, orange-yellow berry, which is said to be used in China as a dye.

JASMINE, or JESSAMINE, CAROLINA, or YELLOW, a climbing plant growing in Virginia and southward, clambering over trees and fences, bearing in profusion yellow, funnel-shaped flowers, an inch in diameter, and having a fragrance similar to that of the true jasmine, the odor, on a damp evening or morning, being almost overpowering. This plant is the *gelseminum sempervirens*, belonging to the family *loganiaceæ*. It has been recently used as a sedative, in medicine.

JASON, known as the tyrant of Pheræ, lived in the 4th c. B.C., and was assassinated in 370. He sought to reduce all Thessaly to submission, and was successful in conquering the chief cities. Created dictator of Thessaly, he entered upon a successful warlike career, and, had he not been cut off when at its height, would doubtless have achieved a lofty reputation as a general, rivaling even that of Philip of Macedon, whom he resembled in the comprehensive nature of his ambitious designs.

JA'SON. See ARGONAUTS.

JASPER (Gr. *iaspis*), a mineral generally regarded as one of the varieties of quartz (q.v.), and distinguished by its opacity, owing to a mixture of clay or other substances with the silica of which it is chiefly composed. There are many kinds of jasper, some of them of one color, as brown, red, yellow, green, white, blue, or black, and some variously striped, spotted, or clouded with different colors. Jasper is a very abundant mineral; it is found in veins and embedded masses in many rocks, sometimes appears as a rock of which whole hills are formed, and is very common in the shape of pebbles. It has been prized from the most ancient times for ornamental purposes, as it takes a high polish. Many kinds of it are very beautiful; and it can often be obtained in pieces of large size, so that it has been much used not only for rings, seals, and other small articles, but for the decoration of palaces. One of the best known kinds of jasper is found in Egypt, and is therefore called *Egyptian jasper*. It is generally yellow, prettily mixed with brown.—Jasper with very distinct stripes is called *ribbon jasper*.—The kind called *porcelain jasper* is rather rare. It is often full of minute holes, or is cracked in all directions. It is regarded as a kind of natural porcelain, formed by the action of fire.

JASPER, a co. in n.e. Georgia; 400 sq.m.; pop. '80, 11,849; is a rich agricultural district, though hilly, and produces corn, tobacco, and cotton. It has valuable mineral resources, particularly iron and gold. The Ocmulgee river forms its northern boundary, and it is watered by Cedar and Rocky creeks. Capital, Monticello.

JASPER, a co. in s.e. Illinois; 484 sq.m.; pop. '80, 14,515; is largely formed of prairie land, the soil being fertile and productive in wheat, Indian corn, and oats. The St. Louis, Vandalia and Terre Haute railroad to the Indiana state line crosses its n.w. corner. It is watered by the Embarras river. Capital, Newton.

JASPER, a co. in n.w. Indiana, having the Kankakee river for its northern boundary; 675 sq.m.; pop. '80, 9,464; is also watered by the Iroquois river. It is comprised, mostly, in prairie and marsh land, excellent for pasturage, while much of it is heavily wooded. Its productions are wheat, Indian corn, oats, hay, and potatoes; and there is a considerable and growing dairy industry. Capital, Rensselaer.

JASPER, a co. in s.e. central Iowa, watered by the Skunk river and its n. fork; 720 sq.m.; pop. '80, 25,963; is undulating in prairie and woodland, and has rich coal deposits. The soil is fertile, and it produces very largely of Indian corn, wheat, oats, and potatoes, and has valuable dairy industry. Capital, Newton.

JASPER, a co. in s.e. Mississippi, watered by the Leaf river and its affluents; 650 sq.m.; pop. '80, 12,126—5,651 colored; has undulating surface and fertile soil, and produces cotton, corn, and sweet potatoes. It is rich in cattle, horses, sheep, and swine. Capital, Paulding.

JASPER, a co. in s.w. Missouri, on the border-line of Kansas; 550 sq.m.; pop. '80, 32,021—772 colored; is watered by the Spring river, and has a fertile soil, productive of wheat, Indian corn, oats, and potatoes. This county has also a large dairy product, and some manufactures. Capital, Carthage.

JASPER, a co. in s.e. Texas, having the navigable rivers Neches and Angelina on the w.; 918 sq.m.; pop. '80, 5,778—2,538 colored; chiefly pasture land and timber, but produces rice, cotton, tobacco, Indian corn, and sweet potatoes. Capital, Jasper.

JASPER, WILLIAM, 1750–79, enlisted as a sergeant in a South Carolina regiment at the beginning of the American revolution, refusing a commission on account of his defective education. At the attack on fort Moultrie, June 28, 1776, Jasper distinguished himself by recovering, through an act of personal bravery, the colors of the defenders of the fort, which had fallen outside and were in danger of capture. On another occasion, aided by but one other person, he captured an entire British guard of 10 men, setting free the patriot prisoners whom they were conducting to Savannah. His daring act in this instance was recognized by the presentation, on the part of gov. Rutledge, of a handsome sword. Jasper fell mortally wounded at the assault on Savannah, while bringing off a stand of captured colors.

JAS'SY, the capital of Moldavia, the northern division of Roumania, is picturesquely situated on the slope of the Kopoberg mountains, near the borders of Bessarabia, and about 10 m. w. of the Pruth. It is irregularly built and dirty, and in its crooked streets the palatial mansion of the bojar—the Moldavian noble—alternates with huts of the most inferior description. It contains about 90 ecclesiastical edifices, one of which dates from the 14th century. On a height is the prince's court, formerly the residence of the governor of Moldavia. The streets are covered with dust in summer and with mud in winter, on which account conveyances are here in great requisition, and every one except the Jew and the mendicant employs a drosky. In Jassy there are 1300 private carriages. 5,000 droskies, and 12,000 horses. The manufactures of the town are few; there is, however, considerable trade in agricultural produce. Pop. 90,000, of whom many are Jews, Greeks, Armenians, and Germans.

JASZBERE'NY, a considerable t. of Hungary, in the co. of Jasygia and Kumania, is situated on both banks of the Zagyva, 42 m. e. of Pesth. Pop. '80, 21,507, who are employed in agriculture and in the trade in corn, cattle, and horses.

JATAKA (literally, "relating to birth") is with the Buddhists the name of a work or a series of books containing an account of 550 previous births of Sâkya Muni, or the Buddha. Several tales that pass under the name of Æsop's fables are to be found in this collection of legends.

JATI'VA, or **XATIVA,** SAN FELIPE DE, a t. of Spain, in the province of Valencia, 22 m. s. of the city of that name. Its climate is delicious, and the well-watered plain on which it stands is luxuriant in fruits and flowers. Its trade and manufactures are unimportant. Pop. 14,000.

JATS, or JAUTS, the name of a people of Hindustan, first mentioned in history at the beginning of the 11th century. They opposed the invasion of Mahmoud the Gaznevide, and are said to have gathered a fleet of as many as 8,000 boats in the Indus, where they were attacked by the invader and completely defeated. In the reign of Aurungzebe, the Jats appeared as banditti in the mountains in the interior of India. They increased in strength and daring, until they finally became formidable, and under their chief, Sooraje Mull, even dictated the policy of the Mogul court. The invasion of northern India by Ahmed Shah, sovereign of Cabul, put an end to the prestige of Sooraje Mull, who, after allying himself to the Mahrattas, deserted them before the battle of Panniput, and joined Ahmed Shah. His services on the occasion of this battle were rewarded by the possession of Agra and its district. At the time of the establishment of British power in northern India, the since celebrated Runjeet Singh was rajah of the Jats, and by a treaty with lord Lake, was permitted to remain in control of his territories without paying tribute. Disagreement between the English authority and that of the rajah brought about a conflict, and early in 1826 the almost impregnable fortress of Deeg, the stronghold of the Jats, was invested by a large force of British soldiers under lord Combermere. On Jan. 18 the fortress was stormed and captured, and the power of the Jats was at an end.

JAU'ER, an interesting old t. in Silesia, Prussia, situated on the Neisse, 10 m. s.s.e. of Liegnitz. The town is famous for its sausages; and there is a weekly corn-market, which has been regularly held since 1404, and is the most important in Silesia. Jauer was formerly a very prosperous town, being the only market for the linen trade of Silesia; but the thirty years' war reduced its extent and prosperity. Pop. '80, 10,603.

JAU'JA a city in the department of Junin, in Peru, is 108 m. n.e. of Lima; pop. 15,000. Until 1535 it was the capital of the vice-royalty of Peru. It is so beautiful in its position and surroundings that it is esteemed in that part of South America as an earthly paradise. The province of Jauja contains valuable silver mines.

JAUL'NA, a t. of India, in the Deccan, Nizam's dominions, situated on a gently sloping declivity, in a rugged country, 38 m. e. of Arungabad. It has a fort and cantonment for British troops. The climate is healthy, and favorable for the production of vegetables and fruits. On the opposite bank is the old town of Jaulna, now much decayed, but formerly large and flourishing, having enjoyed an extensive trade in grain and silks. It yet possesses to some extent a manufacture of silks for native use. Pop. 10,000, of whom about a fifth are Mussulmans.

JAUNDICE, a yellow color of the skin and conjunctiva of the eye, arising from the presence of the coloring matter of the bile in the blood and tissues, is a symptom of various disordered conditions of the system, rather than a special disease.

With this coloring of the skin and eyes the following symptoms are associated: the fæces are of a grayish or dirty-white tint, in consequence of the absence of bile, and the urine is of the color of the saffron, or is even as dark as porter, in consequence of the presence of the coloring matter of the bile. There is sometimes, but not in the majority of cases, an extreme itching of the skin. It is a popular belief, as old as the time of Lucretius—

Lurida præterea fiunt quæcunque tuentur arquati—

that to a jaundiced eye everything appears yellow. This, however, like the preceding, is only an occasional symptom.

The most obvious cause of jaundice is some obstruction in the gall-ducts, preventing the normal flow of bile into the intestine. This obstruction may arise in any of the following ways: 1. It may be caused by the impaction of a gall-stone in the common hepatic duct. See LIVER. In this case, the jaundice is usually of short duration, and disappears soon after the gall-stone has passed into the intestine. 2. Another cause of jaundice is the obstruction of the gall-ducts by cancerous disease of the head of the pancreas, by tumors in the liver, or by a diseased condition of the duodenum, the portion of small intestine into which the common hepatic duct opens. In these cases, the obstruction is usually permanent, and causes a persistence of the jaundice. 3. Obstruction or closure of the gall-ducts sometimes occurs in the inflammation of the liver that is brought on by spirit-drinking, and sometimes may be caused by inflammation originating in the ducts themselves, which, from their small size, may be readily closed up by the inflammatory swelling of their mucous membrane. 4. The jaundice that occasionally rises from constipation, or that occurs during the advanced stage of pregnancy, is probably caused by pressure upon the common hepatic duct.

But although jaundice is frequently caused by some of these mechanical impediments to the flow of bile into the intestine, it results primarily and solely in a great number of cases from the secretion of bile being suppressed or deficient. The secretion may be suppressed so as to cause jaundice by a sudden mental shock or by continued anxiety. Various poisons in the blood may also suspend the secretion of bile to such an extent as to cause jaundice. It may be produced in this way by the salts of copper and of mercury, by opium, and by the poison of serpents; and it often occurs from the poisoned state of the blood in the course of fevers, especially the virulent fevers of tropical climates.

The prognosis in jaundice is generally favorable, except when it depends upon structural disease of the liver, or on mental shock or anxiety. The treatment must be chiefly guided by reference to the conditions which give rise to it in any particular case, and should never be attempted without professional advice.

JAUNDICE (*ante*). In the diagnosis it is noticed that the color of the skin in a sick person sometimes becomes so yellow or brownish-yellow as to lead to a belief in the reabsorption of bile, which is not the fact. The white of the eye is always more or less yellow in jaundice. In forming an opinion as to whether the hepatic disturbance is abating, as it must do before the jaundice diminishes or the discoloration of the conjunctiva begins to disappear, the sum of the symptoms must be taken into consideration, and particular attention must be paid to the examination of the fæces. Traces of bile, or rather of some of its constituents, particularly the coloring matter, or biliverdine, can usually, though not always, be detected when the liver is resuming its functions, or at least when the bile is flowing into the intestinal canal; therefore a reliance upon this test alone would sometimes lead to fallacy and the continuance of remedies no longer necessary, or perhaps injurious. The diagnosis in regard to the resumption of the hepatic function of biliary secretion must take into consideration the physical examination of the hypochondriac region, and the general character of any alterations in the character of the fæces, and the sensations of the patient. See LIVER.

JAVA (Djawa), "the Queen of the Eastern Archipelago," a most valuable colonial possession of the Netherlands, is situated in lat. 5° 2′ to 8° 50′ s., and long. 105° 12′ to 114° 39′ east. It is washed on the n. by the sea of Java, on the e. by the strait of Bali, on the s. by the Indian ocean, and on the w. by the strait of Sunda. The extreme length from e. to w. is 666 m., the breadth varies from 56 to 136 m., and the superficial area is reckoned at 50,260 sq.miles. The island is hilly, and cut in many parts by deep gorges and rushing streams. The mountains rise to a height of from 4,000 to 10,000 ft., and are clothed to their summits with luxuriant foliage. Thirty-six of the lofty mountains are volcanoes, of which eleven are still active.

In 1880 the population of Java and Madura (q.v.) amounted to 19,300,000, having more than trebled in 45 years. The census gave 30,700 Europeans, 306,000 Chinese, 13,083 Arabians, and 19,518 Hindus, etc. The Javanese belong to the Malay (q.v.) race, and are mostly Mohammedans; the remainder being "heathen," whose religion is a degraded superstition. In moral habits and civilization the Javanese are superior to the inhabitants of Sumatra and Celebes. There are 29 Dutch Protestant and 10 Roman

Catholic clergymen, all paid by the government, which fixes their sphere of labor, and strictly prohibits proselytizing. They chiefly labor among the Europeans, half-castes, and intermediate races at the ports, and the natives of the interior are neither made acquainted with the Christian religion nor with European education. The Javanese are much addicted to smoking opium, which is not permitted to be grown on the island, the government importing the quantity considered necessary, and granting licenses for its sale, realizing therefrom an annual revenue, which, in 1871, amounted to £832,308 sterling.

For upwards of 40 years Java has been steadily advancing in prosperity. Its producing power is only limited by the amount of available labor, and notwithstanding the energy which the Dutch have displayed in increasing the breadth of cultivated land, the greatest part of the island is still in a state of nature. Rice is grown extensively for native consumption and exportation; sugar, coffee, indigo, tea, tobacco, etc., for export. The increase in the trade of Java has been great and rapid. In 1848 the imports amounted to the value of £2,666,765 ; the exports to £4,510,472. From 1875 to 1880, the total annual value of imports was £5,000,000 ; of exports, £7,200,000. The revenue from the sale of government coffee in 1882, was nearly $3,000,000.

The countries which trade most extensively with Java are the Netherlands, Great Britain, China and Japan. In the trade reports for 1881, Holland is set down as having imported into Java merchandise to the value of £3, 507,666, this amount including bullion and specie ; while Great Britain sent goods to the value of £1,570,704. In the same year the exports from Java to Holland amounted to £4,418,500, and those to Great Britain to £2,662,870. This difference arises from the largest proportion of the products of the island being the property of the government, and managed, stored, shipped (exclusively in Dutch ships), and sold in Holland by the Netherlands trading company, whose profits arise from the commission allowed on the transactions. The import and export duties are very high, but much modified in favor of the Netherlands. The leading articles imported into Java are cotton and linen goods, wine and spirits, machinery, provisions, etc.; the principal exports are sugar, coffee, indigo, tea, rice, etc. In 1860 sugar was exported to the value of £2,751,998; coffee, £2,535,830; indigo, £293,363; rice, £562,185. Some years the exports of these articles reach a considerably higher figure. In 1870 the produce was 983,634 piculs of coffee (of 133⅓ lbs.); 46,104,200 piculs of rice; 2,191,466 piculs of sugar; and 1,974,676 lbs. of tea.

The island is divided into east, west, and middle Java, containing 22 subdivisions, called residencies, over which a superior European official, the resident, exercises general control, and acts as judge, collector, and magistrate. The resident has European assistants, who perform the same functions in districts of the residency; and native agency is also extensively employed in the government service, all the chiefs being either present or expectant salaried servants of the colonial government, actually engaged, under European superintendence, in ruling the masses. The chief native official of a district is the regent, selected from the family of the former local prince, and retained in office so long as he promotes the interests of the government.

The material prosperity of Java is owing in a great measure to the energy with which the Dutch government has extended the growth and manufacture of those articles which form its staple exports. By an elaborate and skillfully worked-out system of culture, introduced in 1830, the growth and preparation of the staples for exportation have advanced with amazing rapidity. The cultivators of the soil, the native chiefs, the European officials, and the government all share in the profits, and work harmoniously together in developing the capabilities of the land. In carrying out the extensive mercantile transactions which the culture-system involved, the government has been ably assisted by the Netherlands trading company, and the result has been the changing a burdensome colony into a mine of wealth. Between 1824 and 1833 the expenditure exceeded the income. From that time the finances of Java have been prosperous, and the colony has transmitted to the Netherlands since 1838 a sum not short of £30,000,000 sterling. In 30 years the revenue rose from an average of £2,500,000 sterling to £9,500,000 in 1857, in which year the net surplus was £3,500,000 ; the revenue, 1882, was £11,576,000 ; expenditure, £12,375,000 (deficits are rare). Railways are being constructed, and from 1867 to 1881, 350 m. were opened.

Climate.—With the exception of some marshy districts on the n. coast, the climate of Java is healthy and pleasant. On the coasts the thermometer seldom indicates more than 93° F. during the dry, and 84° in the rainy season. The average is 80° at noon, and 70° in the evening. The heat is moderated by the sea-breezes, which constantly blow across the island. Along the high lands of the interior the air is not only breezy, but sometimes cold, the thermometer frequently falling to 45°; and as the entire island is intersected with excellent roads, it is not difficult to reach the most beautiful and salubrious districts. Inland of Semerang, at an elevation of 4,000 ft., Europeans enjoy a pleasant retreat during the dry season.

History.—The history of Java, previous to the 14th c., is involved in fable and obscurity. It appears, however, that the Javanese, from a very early period, possessed a considerable degree of civilization, which was probably the result of the labors of Brahmanical teachers from Hindustan. It is impossible to say precisely when Hindu civilization and religion were introduced into Java, though it must have been very early

in the Christian era. Buddhism was superadded; and there are many old Buddhist temples scattered throughout the island, memorials of the former prevalence of that religion. The most famous is that called Boro Buddor (q.v.). Towards the close of the 14th c., Mohammedanism found a footing in the eastern provinces; and in 1475, the Hindu empire was overthrown, and Mohammedanism became the faith of the country; yet as late as 1511, when the Portuguese first visited Java, they found a Hindu king in Bantam. In 1595 the Dutch sent out an expedition under Houtman, who, on arriving at Bantam, found the king at war with the Portuguese, and offered him assistance, obtaining in return permission to build a factory. In 1677, after many contests with the native princes, the Dutch obtained extensive territories and important trading concessions. In 1811, when Holland became incorporated with France, the British took possession of Java, which, after five years' occupation, was restored to the Dutch. A long and bloody war ended in the whole island becoming virtually a Dutch province in 1830, though two states are still nominally ruled by native princes. Slavery was totally abolished in the island Sept. 20, 1859, by the legislature of Holland.—See Sir Stamford Raffles's *History of Java* (2 vols. London, 1817); Crawford's *Eastern Archipelago; Java, or How to Manage a Colony*, by J. W. B. Money. See NETHERLANDS TRADING COMPANY. On Jan. 1, 1874, the pop. of the residencies or governmental divisions amounted to:

RESIDENCIES.	Natives.	Europeans.	Chinese.	Arabs, etc.	Total.
Bagalen	1,151,145	441	2,549	106	1,154,241
Banjoemaas	916,005	456	3,567	154	920,182
Banjoewangi	56,685	163	235	327	57,410
Bantam	711,277	270	1,699	594	713,840
Batavia, Buitenzorg	907,426	6,081	69,397	964	983,868
Bezoeki	387,046	384	866	385	388,681
Cheribon	1,092,465	751	15,140	1,511	1,109,867
Djokjokarta	413,126	1,242	1,839	123	416,330
Japara	791,991	509	10,110	628	803,238
Kadoe	688,650	377	5,118	68	694,213
Kediri	604,277	664	5,631	....	610,572
Krawang	243,284	272	3,228	22	246,806
Madioen, Patjitan	833,908	411	2 766	327	837,412
Pasoeroewan	595,273	1,240	4,234	1,778	602,525
Pekalongan	485,425	487	4,463	933	491,308
Preanger Regencies	1,163,271	649	934	58	1,164,912
Probolinggo	406,127	653	1,647	1,159	409,586
Samarang	1,298,646	3,050	15,185	3,097	1,319,978
Surabaya	1,507,367	5,342	10,515	2,924	1,526,148
Surakarta	819,277	1,906	5,167	210	826,560
Tagal	844,928	518	5,364	802	851,612
Total	16,826,312	26,531	185,056	16,898	17,054,797
Madura, Island of	719,238	478	5,547	6,058	731,321

In 1864 the pop. of Java and Madura was 13,917,368; in 1874 it had risen to 17,786,118.

Banjoewangi, Buitenzorg, Krawang, and Patjitan are assistant-residencies; Djokjokarta and Surakarta are called the Vorstenlanden (lands of the princes), the former having a native sultan, the latter an emperor, who are vassals of the Dutch.

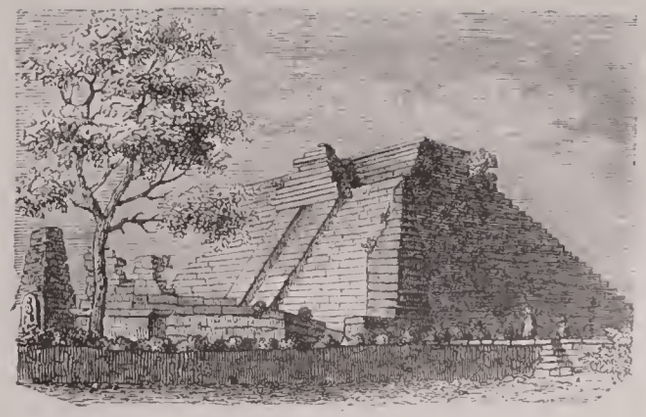
On June 10, 1867, an earthquake caused the loss of about 300 lives and a vast amount of property in several of the residencies, especially in Djokjokarta. The mountains are chiefly volcanic. The highest are Sméru or Mahaméru, in the residency of Pasoeroewan, which is 12,250 ft. high, and Slamat, in Tagal, 11,320. Sulphur, almost pure, is abundant.

Bagalen is one of the most fertile residencies, and produces coffee, indigo, tea, cinnamon, rice, tobacco, sugar, maize, cotton, cocoa-nuts, and a great variety of fruits. The forests contain much fine teak. Besides agriculture, the principal industries are weaving, dyeing blue, rope-spinning, making pottery, nets, paper, and mats. In 1874 there were belonging to the government, 17,333,011 coffee-trees, producing 47,526 cwts. of coffee. Tea and cinnamon are also largely grown, and indigo manufactured.

Banjoemaas (*oe* pron. *ū*) is very mountainous towards the n. and n.e. Banjoemaas, the capital of the residency, situated in a valley on the left bank of the Serajo, in 109° 19′ 20″ e. long., and 7° 33′ 45″ s. lat., is a regularly-built town.

Banjoewangi, an assistant-residency, in the eastern part of the island, is mountainous, well wooded, and fertile. The forests abound in fine timber-trees. Banjoewangi, the capital, lies on the strait of Bali, in 114° 26′ e. long., and 8° 12′ 40″ s. lat., and is a beautiful little town of 8,000 inhabitants.

Bantam, a residency in the w. corner of Java, is low and marshy on the n. coast. Towards the interior, it gradually becomes mountainous, with the most beautiful valleys between the heights. The s. coast is wild and rocky, and on the w. side are impassable wildernesses, swarming with wild beasts. The soil is generally fertile, producing the usual crops of the island. Bantam, the former capital of the once powerful kingdom of that name, is now little more than a village, in which the remains of former grandeur are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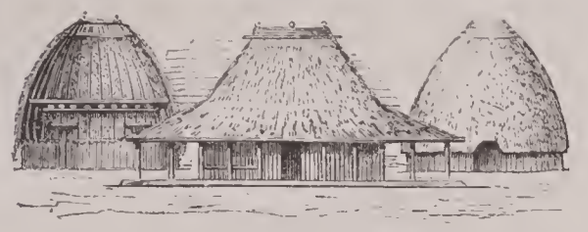
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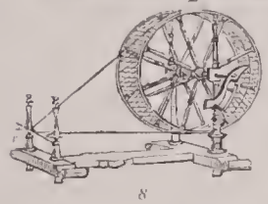
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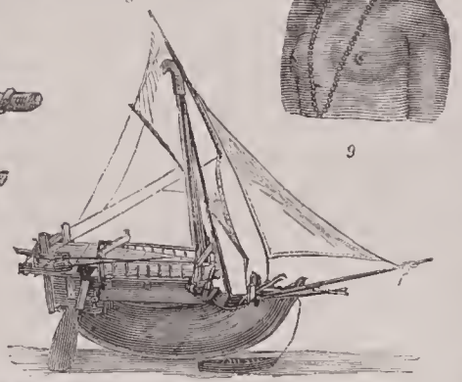
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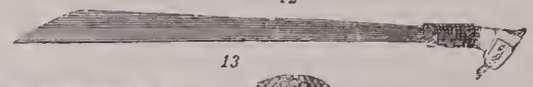
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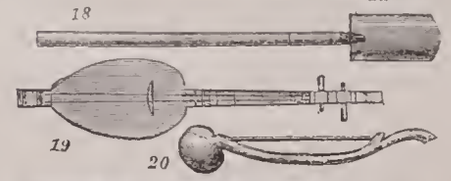
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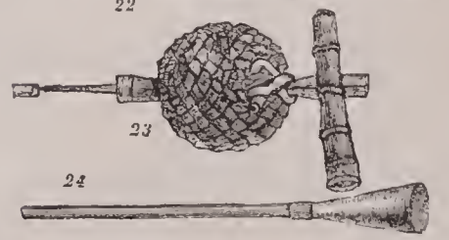
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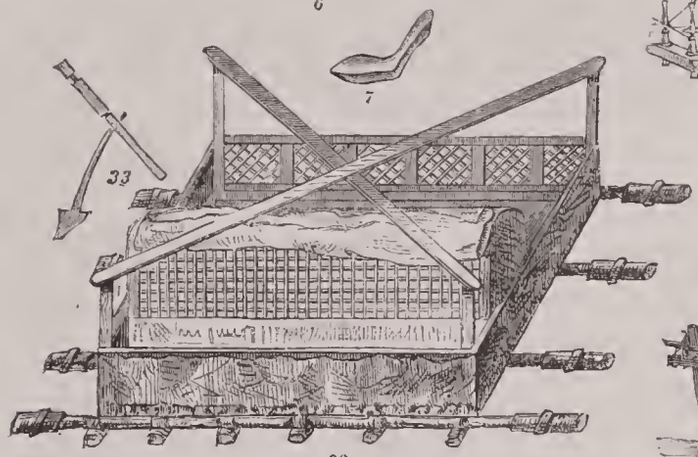
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Java, Sumatra, Celebes, and Pelew Islands.—1. Chief temple at Súku. 2. Javanese. 3. Pail made of palm-leaf. 4. Jannan bride and groom. 5. Javanese in war-clothes. 6. Timor houses. 7. Spoon. 8. Spinning-wheel. 9. Nigrito of North Luzon. 10. Passenger and freight vessel (Celebes). 11. Vanguardsman of the Amfoang district (Java). 12. Bamboo bridge and Malay church (Celebes). 13. Beheading knife (Celebes). 14. Kitchen form. 15. Bamboo box (napkin-holder). 16. Dirk. 17. Chief of Pelew Islands. 18. Macassar spade. 19, 20. Fiddle and bow (Macassar). 21. Bellows. 22. Drill. 23. Gun-barrel drill. 24. Reaper for small fruit. 25. Sword. *Pelew Islands:* 26. Funnel. 27. Comb. 28. Dyak chair. 29. Ceram sago-oven. 30. Public meeting-place at Pelew. 31. Washing sago in Ceram. 32. Macassar bier. 33. Rope-twister. 34. Dyak tampajan (fancy vessel).

to be seen. The resident has his seat at Serang, a large village, in 106° 8′ 37″ e. long., and 6° 6′ 45″ s. lat.

Bezoeki, on the e. coast, is mountainous, and clothed with a luxuriant vegetation.

Buitenzorg, an assistant-residency, is very healthy, and often has a favorable influence on the sick from other districts of Java, especially of Batavia, to which it is contiguous. Buitenzorg, the capital, is 883 ft. above the sea-level, and is one of the most pleasant places in the island.

Cheribon is a very extensive and beautiful residency, and derives its name from that of the capital, which is a corruption of Tji-ribon, or river Ribon, on which it is built. Cheribon, the capital, in 108° 38′ e. long., and 6° 45′ s. lat., was once a flourishing place, but has been for some time retrograding.

Djokjokarta produces the usual crops. The natives are much addicted to the use of opium. The productive power of the population is therefore less than in other districts of the island. Djokjokarta, the capital, is situated on the right bank of the Oepak, in 110° 21′ 30″ e. long., and 7° 46′ s. lat., at the s.s.w. base of the mountain Merapi. The city is large, and regularly built. It is the seat of the sultan, the resident, and assistant-resident. Pop. 50,000, of whom 600 are Europeans.

Japara, on the n. coast, has a very warm climate in the interior, and though vegetation is in general luxuriant, yet scarcity of water is sometimes felt. The resident has his seat at Pati, in 110° 56′ 7″ e. long., and 6° 45′ 30″ s. lat., which is regularly built, and has a pop. of 10,000.

Kadoe—i.e., hollow—is a large basin formed by lofty mountains, of which Soembing is 10,911 ft. high, and the Sindoro 10,312. It is one of the smallest residencies of Java, but densely peopled. Its fertility is increased by the abundance of water flowing from the surrounding mountains, The amount of coffee produced is very great; in 1874 the fruit-bearing trees numbered 32,903,125, producing 90,271 cwts. of coffee. Beautifu marble is found in great quantities. The capital is Magelang, situated on the e. bank of the Progo, in 110° 10′ 7″ e. long., and 7° 29′ s. lat. Pop. 34,000.

Kediri consists of a plain bounded by mountains on the n., e., and west. The navigable river Brantas, which flows through a great part of the residency before falling into the sea of Surabaya, affords great trading facilities. The people, however, are low in the scale of activity and morality, which may partly result from Kediri having been, under the former Javan princes, a penal colony. They are greater slaves to opium than any other people in the Indian Archipelago. Kediri, the seat of the resident, is situate on the right bank of the river Kediri, 600 ft broad, which higher up is called the Brantas. The streets are broad and planted on both sides with tamarind trees.

Pasoeroewan, which is washed by the strait of Madura, has important fisheries, and is famed for its race of horses. Pasoeroewan, the capital of the residency, is situated near the sea, on the river Gemboug, in 112° 55′ 2″ e. long., and 7° 38′ 40″ s. lat.

The Preanger regencies are partly occupied with mountains, forming two chains. Between these are many extensive valleys of the richest soil. The mountains are of basalt. There are many rivers, of which five are navigable. The numerous lakes give good supplies of fish and water-fowls. The bays on the coast are also frequented by fishing-boats. The mountains are covered with coffee plantations to 3,000 ft. above the sea-level, while the low and marshy grounds produce rice abundantly, and the villages are hid with cocoa-nut palms and other fruit-trees. In no other residency is the tea-culture so extensive. The forests produce good timber, the bamboo attaining a height of 80 feet. There are rhinoceroses, tigers, harts, wild swine, etc., and birds of great variety and beauty. The natives are honorable, simple, and obedient, and subsist from the growing of coffee, rice, fruits, etc., the rearing of horses and buffaloes, making spinning-wheels, mats, gold and silver work, etc. The women weave very beautiful cotton cloth. Coffee and tea, and, later, also cinchona, are the only products raised for the government.

Probolinggo, in 1874, produced 400,686 cwts. sugar and 43,359 cwts. coffee. Forests containing many teak trees cover the s. coast. There are tigers, wild dogs, monkeys, squirrels, etc Probolinggo, the capital, lies on the coast, in 109° 21′ 45″ e. long., and and 7° 23′ 22″ s. lat., and is extensive and populous. From this port much of the produce of the land is shipped for the Netherlands.

Rembang produces the usual crops. The northern parts are dry and sandy; and in the s. are extensive forests, abounding in teak and other valuable timber trees. The residency is washed by the Java sea, and the people on the coast find their living by trade, fishing, and ship-building. Rembang, the capital, is regularly built, and besides the public offices, has a small Protestant church, a government school, and an institution for the education of girls.

See SAMARANG, SURABAYA, and SURAKARTA.

Tagal is very fertile. It is washed on the n. by the Java sea, and the fisheries are important. In the s. of the residency is the volcano Slamat, 11,320 ft. high, which is clothed with forest to the height of 8,500 ft., and on the southern side descends by regular terraces to the bed of the river Serajoe. Tagal, the capital, is a small but neatly-built town, with a considerable coasting trade. The natives are industrious and good handicraftsmen. See the great work on Java by Veth (1875–80).

JAVANESE LANGUAGE AND LITERATURE. Two languages, possessing many words in common, but differing in essentials, are spoken in Java, the Javanese and the Sunda. From the earliest times Javanese has been a written language, and its alphabet has extended to the Sunda language. Inscriptions on stone and metal are in existence, which date back to the 12th century. The early characters differ from those now in use, but not more than black letter from modern type. They are in every particular dissimilar from those of the Hindu or Archipelagaic alphabets. They appear to be entirely original, invented by the inhabitants themselves. In the Javanese grammar the consonants alone are considered substantive letters, the vowels being merely intended to modify, or, as the people themselves say, "clothe" them. There are 19 consonants, but the vowel *a*, as an initial, is considered a substantive letter. The same vowel is included in every consonant, and follows every one also, unless a contrivance is employed to cut it off. Apart from *a* there are 5 other vowels. Every sound in the language has its representative character, and each letter has its own peculiar power, and no other.

The foreign elements in the Javanese languages are: Sanskrit, Arabic, Tâlugu, or Telinga, which have become incorporated with it, not by foreign conquest or intermixture of race, but through religion and commerce. Of these, Sanskrit is the predominant. We have no clue to the influx of the Hindu sacred language into the Javanese tongue, but it must have been incidental to the conversion of the Javanese to Hinduism. and probably of very great antiquity. There are three dialects of the Javanese language: the vulgar, the polite, and the ancient or recondite. It is far more polished than the Sunda, which, although now written in the Javanese with the omission of the palatial *d*, and *a t*, had formerly a character peculiar to itself. The Javanese boast a very considerable literature in both the modern and the ancient tongues. In both it is metrical, the ancient showing many indications of Sanskrit poetry; and the modern abounding in stanzas of various kinds, and in a peculiar rhyme, which are entirely original. Romances and romantic histories are very popular; and abstracts of the Sanskrit poem which describes the wars of the Pandus and the legends of Rama are to be met with. These are to the Javanese mind what Homer's poems were to the Greeks. Original Javanese poetry possesses little originality or force, but it is superior to that of any other people of the Archipelago. Oriental scholars are interested in the prevalence of Indian legends. The *Ramayana* is identical with the *Ramajana* of the Hindus, and in their *Gastra manava* we recognize the fundamental principles of Manus's book of laws. Several books have been translated into Javanese, amongst others *The Thousand and one Nights*. There is a Javanese newspaper. One peculiarity of the language should be noticed, it affords special forms and flexions for addressing particular persons, having regard to their rank. In speaking to servants, the mode of addressing them is called *basa noko*, or simply *nókó*, or commanding; and in speaking to superiors, the servants in turn use *basa krama*, or *krama, humble* speech. Then, for those who occupy no especial position, there is the *basa madya*, or middle speech; and lastly the *basa kraton* or court language is used to kings or their envoys.

JAVELIN, a short and light spear used for darting against an enemy. In the Roman legion, the first and second lines (the hastati and the principes) were both armed with two javelins to each man. Each javelin (Lat. *pilum*) was in all about 6¾ ft. in length; the shaft 4½ ft. long, of tough wood, an inch in diameter; and the remainder given to the barbed pyramidal head. In action, the legionary hurled one javelin on the enemy at the first onset; the second he retained as a defense against cavalry. The Goths and other barbarians used a javelin.

JAWO'ROW, a t. of the Austrian empire, in the province of East Galicia, 28 m. n.w. from Lemberg, on the Krakowska, an affluent of the San, which itself is a branch of the Vistula. Close by the town is a lake, abounding in fish. Jaworow is built in the form of a square, and has extensive suburbs. It has mineral springs. Near it are large paper-mills. Many of the inhabitants are Jews. Pop. '80, 9,072.

JAXAR'TES, now called SIHÛN, or SIR-DARIA (i.e., Yellow river), a river of Turkistan, which rises in the high plateau s. of lake Issikul, in the Thian Shan mountains, flows in a westerly direction through the valley of Khokan, receiving in its course numerous accessions; after passing Otrar, it divides into two branches; the largest and most northerly retaining the name Sir-Daria, flows west-by-north, separating the Russian territory from the steppes of Turkistan, and, after a course of 1150 m., falls into the sea of Aral; the lesser branch, called Kuvan-Daria, flows westward, supplying some small lakes in the line of its old channal, but for several years back has not reached the sea of Aral, though sixty years ago it had a greater volume of water than the Sir-Daria.

JAY, *Garrulus*, a genus of the crow family (*corvidæ*), differing from magpies chiefly in the rather shorter bill, and in the shorter and rounded, or sometimes almost even tail. They are inhabitants of forests and wooded districts, chiefly in the temperate parts of Europe, Asia, and North America; and feed more on fruits and seeds than crows and magpies generally do; but they have the omnivorous character of the rest of the family, and often rob the nests of other birds, whether containing eggs or young.—The COMMON JAY (*G. glandarius*) is a well-known native of England and of the s. and middle of Scotland, although less common than it once was, in consequence of the incessant war which

has been waged against it, both by gamekeepers and by the legislature itself; an English statute of the 17th year of George II. having empowered grand juries to offer threepence for the head of each jay, on account of alleged injury done to young trees. It is rather smaller than a jackdaw; the plumage is mostly ash-gray, finely tinged with red or purple, the quill-feathers and tail mostly black, a beautiful mottled patch on each wing rayed with bright blue, a broad mustache-like stripe of black extending for an inch from the base of the lower mandible on each side; the head is furnished with a crest of erectile feathers, each of which has a streak of black in the middle. Jays are most frequently seen solitary or in pairs. They build in thick trees or bushes, and their nest is a basket-like structure of small sticks, lined with fine roots and grasses; the eggs, five or six in number, are yellowish-white, minutely and thickly speckled with light brown. When taken young, the jay is very easily tamed, becomes very familiar and amusing, and perhaps excels all other British birds in its power of imitating voices and sounds.—The BLUE JAY (*G. cristatus*) of North America, a species abundant from the Gulf of Mexico to Canada, is smaller than the common jay; it has a similar crest or tuft on the head, and a longer and more rounded tail. The general color of the upper parts is bright purplish-blue; the wings and tail white, barred with black; the neck surrounded with a curved black collar. It is more gregarious than the common jay, and partially migratory.—The CANADA JAY, or CARRION BIRD (*G. Canadensis*), is a more northern American species.—Other very beautiful species are found in the n.w. of America, Mexico, and the Himalaya mountains.

JAY, a co. in e. Indiana, watered by the Wabash and Salamonie rivers; 370 sq.m.; pop. '80, 19,282. It is traversed by the Pittsburg, Cincinnati and St. Louis, and the Richmond and Fort Wayne railroads. Co. seat, Portland.

JAY, JOHN, an American statesman and jurist, and first chief-justice of the supreme court of the United States, was b. in the city of New York, Dec. 12, 1745. He graduated at King's, now Columbia college, New York, in 1764, and was admitted to the bar in 1768. He took a moderate and conciliatory part in the American revolution, was a member of the congress of Philadelpia, was president of congress in 1778, and minister to Spain in 1779. He was very influential in negotiating the treaty of peace, and it was, according to lord St. Helens, "not only chiefly, but wholly by his means that it was brought to a successful conclusion." He wrote a portion of the *Federalist*. His services to the federal party were deemed so great that Washington offered him his choice of the offices in his gift, and he selected that of chief-justice. He resigned, and became governor of New York, and in 1794 minister to England. On the defeat of the federal party he retired from public life, and lived in great seclusion, only taking part in religious, peace, temperance, and antislavery movements. He died at Bedford, New York, May 17, 1829.

JAY, JOHN, LL.D. (*ante*), descended from the Huguenots of La Rochelle, France, who fled their country on the revocation of the edict of Nantes. He gained high repute as a lawyer, and powerful political influence, and was the author of the important *Address to the People of Great Britain*, which was one of the early documents issued by the American patriots. He was a leading and influential member of the convention of the state of New York, 1776, and afforded valuable assistance in framing the constitution. He was chief-justice of New York, and a member of the council of safety. In 1778–79 he presided over congress, and was then sent to Spain on a special mission. From 1795 to 1801 he was governor of the state of New York, and it was under his administration that slavery was abolished in the state.

JAY, JOHN, b. New York, 1817; son of William Jay; was educated at Columbia college, graduating in 1836, and commencing practice at the bar in 1839. He was for some years prominently connected with the New York historical society, and other important literary or political organizations, and has published many pamphlets and reports upon public questions. In 1869 he received the appointment of U. S. minister to Austria, and held the position until 1875.

JAY, WILLIAM, an English Independent or Congregational minister, of much celebrity for his pulpit eloquence, and as a voluminous writer of devotional, practical, and other religious works. He was born, May 8, 1769, at Tisbury, in Wiltshire. His father was a stone-cutter and mason, and young Jay's first employment was that of a mason's boy; but whilst still young he was sent to Marlborough academy, an institution of the Congregationalists for the training of young men for the ministry. According to a custom prevalent amongst the Congregationalists, he was sent out to preach in country villages almost in his boyhood—in fact, before he was 16 years of age. His education being completed, he officiated for a year in a chapel at Clifton; and in 1791 was settled as pastor of a "church" in Bath, which position he occupied for 62 years. He retired from it in Jan., 1853, and died Dec. 27 of the same year, at the age of 84. Mr. Jay's published works, in general, attained to a rapid and very extensive popularity. Among them are sermons, family prayers, *Morning and Evening Exercises; Mornings with Jesus;* an essay on marriage; memoirs of the rev. Cornelius Winter; memoirs of the rev. John Clark; lectures on female Scripture characters; and an autobiography. A collected edition of his works, in 12 vols., revised by himself, was published in 1841, but is of course incomplete, some of his works being of more recent date.

JAY, William, ll.d., 1789–1858; b. New York; son of John Jay; distinguished by his philanthropic schemes, and devotion to temperance, antislavery, and anti-war. He was educated for the legal profession, and was successively judge of the court of common pleas in New York, and first judge of Westchester co., N. Y., retaining the latter office during 22 years, being finally requested to resign on account of his antislavery opinions. In 1842 he interested himself in the American antislavery society, when the question arose in congress of restricting freedom of speech upon the subject of abolition, and published a work, *Inquiry into the Character of the American Colonization and Antislavery Societies*, in which he ably discussed the question. In 1843–44 he visited Europe, and proceeding to Egypt thoroughly investigated the question of Egyptian slavery. He was president of the Peace society for many years, and published *War and Peace—the Evils of the First and a Plan for Supporting the Last.* His largest work was *Life and Writings of John Jay.* He left $1,000 by his will for the "promotion of the safety and comfort of fugitive slaves." Died in Bedford, N. Y.

JAYADE'VA, the name of a celebrated Hindu poet, who, according to some, lived about the middle of the 11th, according to others about the middle of the 16th c., after Christ. His great work is the *Gîtagovinda,* an erotic poem in honor of Krishna, an incarnation of Vishnu, and his wife Râdhâ, interpreted in a literal and mystical sense.

JAZYGES, one of the numerous tribes which, during the early Roman empire, were comprehensively named Sarmatians. They originally occupied the shores of the Black sea, and sea of Azov. The origin of the name Jazyges, as applied to one particular branch of this people, is to be found in the history of their division, in the time of the emperor Claudius, into three distinct parties, settling respectively on the Don, the Dniester, and the Danube. The last named craved the protection of Rome, and were called by them the Jazyges Metanastæ, or transplanted. At the invasion of the Magyars they became dispersed as a distinct people, but later on reappeared, and selecting a district of Hungary, established a colony under the name of Jazygea, which, in our own day, is under the administration of the Palatinate. Its capital is Jászberé'ny, and it has an area of 400 sq. miles. Pop. '70, 215,526.

JEANNETTE EXPEDITION. See Polar Expeditions.

JEANRON, Philippe Auguste; b. Paris, 1809–77; distinguished himself as a painter and author. He was mainly self-educated, and first attracted attention by his "Little Patriots," and "Twelve Episodes in a Proletarian Life," which he painted at the suggestion of Ledru-Rollin. He had the direction of the national museums of France from 1848 to 1850, and was afterwards in charge of the museum of Marseilles. Of his publications the best are *Histoire de l'Ecole Française* and *De l'Art de la Peinture.*

JEBAIL', or Jubeil, a t. in Syria, near Mt. Lebanon, 20 m. from Beyrout; pop., 600. It is said to be the site of the ancient city of Byblos (q.v.), and was captured by the crusaders during their wars, its harbor being then destroyed. In 1840, the English wrested it from Mehemet Ali.

JEBB, Sir Joshua, 1793–1863; was an eminent British officer, who first attracted attention when intrusted with the direction of a government inquiry and experiments to improve the condition of convicts in Australia. He managed the matter so ably that he was consulted as to the best remedy for the evils of the prevailing convict system, and in accordance with his views, the system of solitary confinement was established in England, and the great prison at Pentonville built after his designs. He was knighted for his services, and made inspector-general of prisons, devoting the remainder of his life to improving the penal laws and the discipline of jails.

JED'BURGH, an old t., and royal and parliamentary burgh of Scotland, capital of the co. of Roxburgh, is beautifully situated on the left bank of the Jed, 14 m. e.s.e. of Selkirk, and 40 m. s.e. of Edinburgh. Jedburgh has been greatly improved in recent years, many fine new buildings having been erected. The most interesting architectural feature of the town is the remains of the magnificent abbey of Austin canons, founded by king David I., about 1130. Of this structure, the church (230 ft. long) alone remains. The abbey was rifled and burned in 1523 by the earl of Surrey, and again by the earl of Hertford in 1544. To preserve it from threatened ruin, the abbey, a few years ago, was extensively repaired, with judicious regard to its ancient architectural features. The present jail occupies the site of a castle in which Malcolm the Maiden died, and William the Lion, Alexander II., and other Scottish kings frequently resided. The principal manufactures of Jedburgh are blankets, flannels, shawls, plaids, and hosiery. Pop. '81, 3,400.

Jedburgh appears in record as early as the 9th century. Between the years 829 and 854, Ecgred, bishop of Lindisfarne, whose diocese then extended to the n. of the Tweed, built two towns at Jedburgh. One of these is now represented by the hamlet of Old Jedburgh; the other by the town of Jedburgh, which was made a royal burgh in the reign of David I. Situated on the border, its inhabitants were a warlike race, whose slogan, "Jeddart's here!" was seldom long silent. Their chief weapon was the "Jeddart axe," or "Jeddart staff," a stout pole 4 ft. long, with a steel head.

JED'DAH. See Jiddah.

JEDDO, or Jedo. See Tokio.

JEEJEEBHOY, Sir JAMSETJEE, a Parsee merchant-prince and philanthropist, was b. of poor parents at Bombay, July 15, 1783. At an early period, he showed a great aptitude for mercantile pursuits, and in consequence, his father-in-law, Framjee Nusserwanjee, a Bombay merchant, took him into partnership. While still a young man, he visited most of the maritime countries of Asia, besides Egypt, Syria, and England. After he had become chief partner in his father-in-law's firm, the wealth of which rapidly and prodigiously increased, Jeejeebhoy kept his eye on the progress of political events in Europe; and when peace was restored there after the fall of Napoleon, the Indian trade was so much benefited that, from 1814 to 1819, the value of the imports from Europe rose from £870,000 to £3,052,000—in which increase, we are informed, "the house of sir Jamsetjee and his father-in-law enormously participated." By the year 1820, when he had completed his 20th year of business, he had amassed an immense fortune, and was universally acknowledged to be the first merchant in the East. He now began to exhibit, on a magnificent scale, his liberality of spirit and love of his fellow-creatures. His contribution to the Jamsetjee Jeejeebhoy hospital was 160,500 rupees; his endowment of the Parsee benevolent institution, 440,000 rupees; the Mahim causeway, built by him, cost 150,500 rupees; the Dhurumsalla, or poor asylum, 150,000 rupees; the water-works constructed by him at Poona cost 180,000 rupees; and the endowment of the Jamsetjee school of industrial arts, 100,000 rupees. Altogether, between the years 1822 and 1858, sir Jamsetjee Jeejeebhoy spent "upwards of a quarter of million pounds sterling in founding, endowing, or supporting undertakings of a purely benevolent character." Parsee and Christian, Hindu and Mussulman, were alike the objects of his splendid and magnanimous beneficence. At length the fame of his munificence reached the ears of queen Victoria, who conferred on him the honor of knighthood. Other honors followed; and in 1857 he was made a baronet of the United Kingdom. He died April 15, 1859, and was succeeded in the baronetcy by his eldest son, Cursetjee Jamsetjee Jeejeebhoy, who, in accordance with his father's will, took his father's name. He, again, was succeeded in 1877 by his son Manekjee, who also assumed the name of the first baronet.

JEFFERSON, a co. of n. Alabama, in the coal regions; 980 sq.m.; pop., 23,272. Surface, rough and hilly, but with productive valleys. The staple productions are, corn, cotton, and wool, and there are manufactures of iron. Co. seat, Elyton.

JEFFERSON, a co. in s.e. Arkansas, watered by the Arkansas river; 900 sq.m.; pop. '80, 23,286. It is fertile and well timbered, and produces corn and cotton. Co. seat, Pine Bluff.

JEFFERSON, a co. in Colorado, situated among the foot-hills of the Rocky mountains; 800 sq.m.; pop., 6,804. The land requires irrigation for farming purposes, but is excellent for grazing, and abounds in coal, iron, and fire-clay. It is traversed by the Colorado Central railroad. Co. seat, Golden.

JEFFERSON, a co. in Florida, stretching from the Georgia frontier to the gulf of Mexico; 470 sq.m.; pop. '80, 16,065. It is wooded, and the soil is easily cultivated and fertile. The staple products are cotton, sugar, rice, and fruit. Co. seat, Monticello.

JEFFERSON, a co. in e. Georgia, drained by the Ogeechee river; 634 sq.m.; pop. '80, 23,251. The surface is generally level, and the soil fertile. It is traversed by the Central railroad of Georgia. Co. seat, Louisville.

JEFFERSON, a co. in s. Illinois; 530 sq.m.; pop. 20,686. It is varied by prairie and woodland, and the soil is generally fertile; the productions being grain, tobacco, wool, and live-stock. This county is intersected by the St. Louis and South-eastern railroad. Co. seat, Mt. Vernon.

JEFFERSON, a co. in s.e. Indiana, having the Ohio river as its southern boundary; 362 sq.m.; pop. 25,977. The surface is varied in character, the soil generally fertile; staple products: cattle, grain, and wool. Co. seat, Madison.

JEFFERSON, a co. in s.e. Iowa; 432 sq.m.; pop. '80, 17,478; drained by Skunk river and Big Cedar creek. It has a very productive soil, and contains rich coal measures; the land is well timbered. Co. seat, Fairfield.

JEFFERSON, a co. in n.e. Kansas, having the Kansas river on the s.; 550 sq.m.; pop. 15,563. It comprises rich prairie land, much of it wooded, and with coal and limestone deposits. It is intersected by the Kansas Pacific, and Atchison, Topeka and Santa Fé railroads. Co. seat, Oskaloosa.

JEFFERSON, a co. in n. Kentucky; bordered on the w. and n.w. by the Ohio river; 600 sq.m.; pop. '80, 145,902. The surface is varied and the soil fertile, producing wheat, Indian corn, hay, oats, and sweet potatoes. There are extensive manufactures. Co. seat, Louisville.

JEFFERSON, a parish in s.e. Louisiana, between lake Pontchartrain and Barataria bay, intersected by the Mississippi river; 384 sq.m.; pop. '80, 12,166—7,302 colored. It has a level surface, frequently marshy, and containing numbers of lakes; the soil is productive, the chief yield being in Indian corn, cotton, rice, sugar-cane, and sweet potatoes. It is traversed by the New Orleans, Jackson and Great Northern, New Orleans, Mobile and Texas, and Louisiana and Texas railroads. Co. seat, Carrollton.

JEFFERSON, a co. in s.w. Mississippi, separated from Louisiana on the w. by the Mississippi river; 630 sq.m.; pop. '80, 17,214—13,051 colored. The e. portion is heavily wooded with pine. the soil being generally fertile, and producing cotton, Indian corn, and sweet potatoes. Co. seat, Fayette.

JEFFERSON, a co. in e. Missouri, bounded on the e. by the Mississippi river; 504 sq.m.; pop. 18,733. The soil varies, being fertile in places and barren elsewhere. It abounds in metals; lead, copper, and cobalt being found in considerable quantities. The staple products are grain, cotton, tobacco, and wool. Co. seat, Hillsborough.

JEFFERSON, a co. in s.w. Montana; 2,720 sq.m.; pop. '80, 2,464—52 Chinese. It contains rich farming and pasture land, and gold is found near the Missouri and Jefferson rivers. Co. seat, Radersburg.

JEFFERSON, a co. in s.e. Nebraska; 576 sq.m.; pop. '80, 2,440. The surface varies between level land and high rolling prairies; the soil is very fertile. This county is intersected by the Little Blue river, and traversed by the St. Joseph and Denver city railroad. Co. seat, Fairbury.

JEFFERSON, a co. in n. New York, having lake Ontario on the w. and the St. Lawrence river on the n.w., and watered by the Black river and other streams; 1868 sq.m.; pop. '80, 66,106. It is traversed by the Rome, Watertown and Ogdensburg. and the Utica and Black River railroads, the latter by a branch. In this county is Alexandria bay, which comprises a portion of the lake of the Thousand Islands, and is a favorite place of summer resort. The surface of Jefferson co. is very varied in character, showing extensive marsh lands in the s.w., and ridges and undulations along the shore of the St. Lawrence in the n.e., while from the shore of lake Ontario it is gradually elevated to a height of 1000 ft. or more. The soil is fertile and easily cultivated; in some portions iron, lead, and copper occur in quantities. The principal productions are hay, wheat, Indian corn, potatoes, flax, hops, and barley; large quantities of wool, butter, and cheese also are produced. There are more than 150,000 horses, cattle, sheep, and swine in the county, and the manufactures are comprehensive and important. Co. seat, Watertown.

JEFFERSON, Ohio. See page 886.

JEFFERSON, a co. in e. Ohio, divided from West Virginia by the Ohio river; 350 sq.m.; pop. 33,018. The soil is very fertile, and coal is found in large quantities; the productions are wool, grain, and cattle; and manufactures are extensive in carriages, wagons, clothing, etc. This county is crossed by the Pittsburg, Cincinnati and St. Louis railroad. Co. seat, Steubenville.

JEFFERSON, a co. in w. central Pennsylvania; 500 sq.m.; pop. 27,935. It is very rough and hilly, and is rich in coal and iron. The valleys are fertile, and the surface generally well wooded. The leading products are cattle, wool, and grain, and there are manufactures of leather. Co. seat, Brookville.

JEFFERSON, an e. co. in Tennessee; 225 sq.m.; pop. 15,846; bounded on the n.w. by the Holston river, and drained by the French Broad. The Virginia and East Tennessee railroad traverses this county. The surface is mountainous, and the scenery picturesque and imposing. The valleys are fertile, producing grain and tobacco. Co. seat, Dandridge.

JEFFERSON, a s.e. co. of Texas, intersected by the Texas and New Orleans railroad; 900 sq.m.; pop. '80, 3,489. The surface along the coast is level, and affords good pasture. It is watered by the Neches and Sabine rivers, and borders on the gulf of Mexico. The greater part of this county is heavily wooded. Cotton, rice, and tobacco are grown. Co. seat, Beaumont.

JEFFERSON, a n.w. co. in Washington territory; 1550 sq m.; pop. '70, 1268; bounded on the e. by Puget sound. It has a mountainous surface, and is heavily wooded with gigantic trees; Mt. Olympus, more than 8,000 ft. in height, is in this county. The soil is generally fertile, but is little cultivated, the chief industries being lumbering and the fisheries. Co. seat, Port Townsend. Bog iron abounds. Pop. of co. '84, 2,300.

JEFFERSON, an e. co. of West Virginia, bounded on the n.e. by the Potomac river, and s.e. and s.w. by Virginia; 280 sq.m.; pop. '80, 15,005. It is watered by the Shenandoah river, and contributes to form the valley of that name. The scenery of this county is very picturesque, especially that about Harper's Ferry. The soil is fertile, producing grain and affording good pasturage. Co. seat, Charlestown.

JEFFERSON, a s.e. co. in Wisconsin, drained by Rock river; 576 sq.m.; pop. 32,156. The soil is very fertile, and produces oats, hay, wheat, and tobacco. The Chicago and North-western and La Crosse and Milwaukee railroads traverse this county. Co. seat, Jefferson.

JEFFERSON, a t. and the co. seat of Marion co., Texas; pop. '80, 3,260; is situated 4 m. above Soda lake, on Big Cypress bayou of the Red river. It has become, since the war, a great shipping center, the Red river being navigable by large steamers: the principal exports are cotton, cattle, hides, beef, tallow, and wool; while the commerce with the interior is estimated to amount annually to more than $10,000,000. Jefferson was settled in 1843.

JEFFERSON, a t. in Jefferson co., Wis., on the Crawfish and Rock rivers; pop. 2,115. The houses are generally built of cream-colored bricks, which are manufactured in the town. Jefferson is on the Wisconsin division of the Chicago and North-western railroad.

JEFFERSON, Joseph; b. Philadelphia, 1829; a character or eccentric comedian, whose reputation has been gained chiefly through his remarkable performance of the part of Rip van Winkle, in the play of that name, written by Dion Boucicault from Washington Irving's exquisite romance, which was, in turn, founded on a German legend. Mr. Jefferson inherited his talent—his grandfather, Joseph Jefferson, having been a celebrated English actor, who emigrated to America in 1795, and his mother, a Mrs. Burke, a vocalist of high reputation. He adopted the stage as a profession while very young, and was esteemed an original and able comedian, long before he essayed the part of Rip van Winkle, especially in the character of Newman Noggs, in an adaptation of Dickens's *Nicholas Nickleby*, and that of Asa Trenchard in *Our American Cousin*. Mr. Jefferson has gained some reputation as a painter of landscapes in oils, and has exhibited paintings of decided merit. He has amassed a considerable fortune in the practice of his profession, and is the owner of a sugar plantation in Louisiana and a valuable farm in New Jersey. His son, Joseph Jefferson, jr., also has displayed dramatic talent of a high order.

JEFFERSON, Thomas, third president of the United States of America, was the son of a planter, and was b. at Shadwell, Albermarle co., Virginia, April 2, 1743. He studied at William and Mary's college, Williamsburg; and after leaving college was engaged for some years in the practice of law. In 1769 he was elected to the Virginia house of burgesses, where he joined zealously with the revolutionary party. In 1773, as a member of the assembly, he took a prominent part in the measures which resulted in the calling of the continental congress, to which he was sent as a delegate, where he drew up the celebrated declaration of independence. During the war in defense of this declaration he was governor of Virginia, and in 1784 was sent minister to France, where his manners, accomplishments, and more solid qualities did much to secure to America the powerful alliance that insured her success. Returning in 1789, he was appointed by Washington, secretary of state, a post due to his abilities, his influence, and his distinguished services. The federal constitution had been adopted, and the two parties which soon divided the country began to develop themselves. Washington, John Adams, Jay, and Hamilton, were in favor of a strong centralized government; Jefferson led the party in favor of states' right and a federal government of restricted and carefully-defined powers. The first party took the name of federalists; the latter were first called anti-federals, then republicans, and finally adopted the title first given them as a reproach, of democrats. When Washington retired, after eight years of office as president, and a new election took place, the two highest candidates, as leaders of the opposing parties, were John Adams and Jefferson. Adams, having the largest vote, was declared president, while Jefferson having the next highest number, became the vice-president, 1797. The strife of these parties culminated in 1801, when Jefferson and Aaron Burr were elected president and vice-president, against John Adams, the federal candidate. On entering upon the presidency, he reduced the government to a republican simplicity, made few removals, and resolutely refused to appoint any of his own relatives to office, saying that he "could find better men for every place than his own connections." The most important act of his administration was the purchase of Louisiana from France. At the end of eight years he retired to his residence at Monticello; but he did not retire to a repose of idleness; he kept up an immense correspondence, dispensed the hospitalities of his mansion to visitors from every part of the world, and founded the university of Virginia, of which he was for many years the rector. Though born and educated in the first rank of colonial life, he was a democrat in theory and practice; he held that "the world is governed too much," and that "that government is best which governs least." Though a large slave-holder, he labored for the prohibition of the slave-trade and of slavery in the territory beyond the Ohio river, and advocated emancipation in Virginia. His writings consist mostly of state papers and letters. His only literary work was his *Notes on Virginia*, published in 1782. He had one child, a daughter, and has numerous descendants. His death was very remarkable; it occurred on July 4, 1826, while the nation was celebrating the fiftieth anniversary of the declaration of independence, which he had written. On the same day, and almost at the same hour, John Adams, the second president, who had signed with him the declaration, died in New England.

JEFFERSON, Thomas (*ante*), 1743–1826; b. Va.; author of the American Declaration of Independence, and president of the United States from March 4, 1801, to March 4, 1809. He was the eldest among the eight children of Peter Jefferson, a Virginia planter, who held a leading place in his region, and Jane Randolph; both father and mother being natives of Virginia. Thomas was educated first in a common school in the ordinary studies for a boy of seven years of age, and when nine years old the rev. Mr. Douglass gave him instruction in French and in classical languages. He prepared for college under the tuition of the rev. Mr. Maury, and at the age of 17 became a student in the college of William and Mary. On his way to the college he met and made the acquaintance of

Patrick Henry, who was at that time a broken-down merchant, and had given no sign of the wonderful oratory for which he became famous at the beginning of the revolution. Jefferson was a hard-working student and speedily gained favor with his teachers; twelve to fifteen hours per day he devoted to his books, and became fairly versed in the classical tongues, and in French, Italian, and Spanish, to which he added a tolerable education in mathematics. On leaving college he turned his attention to the law, studied for about five years under judge George Wythe, and in 1767, at the age of 24, was admitted to the bar. As a lawyer his success was immediate, and he soon had a wide practice, his income from clients in the first year being about $3,000 at a time when legal charges were comparatively light. In the following years he was still more successful; and in 1771 a prominent lawyer put him in charge of all his unfinished litigation. In 1769 Jefferson was chosen a member of the Virginia house of burgesses, and immediately became conspicuous for his opposition to the encroachments of the British government. He is credited with writing the resolutions that contained the points of a reply to governor Botetourt's speech. He was also one of the signers of the non-importation compact. The question of emancipating slaves was then agitated in England, but little had been heard on the subject in the colonies. Jefferson proposed an act which would give masters the right to free their slaves whenever they thought proper; but the bill failed to pass, and the principle was not established until 17 years later. His term over, he resumed law practice, removed to an unfinished house (subsequently world-famous as "Monticello"), and on New Year's day, 1772, was married to Martha Skelton, daughter of John Wales, a lawyer, and widow of Bathurst Skelton—a remarkably handsome and graceful woman of 23 years, who brought with her a considerable property. Among her property was 40,000 acres of land and 135 slaves. Added to about an equal amount belonging to the husband, they were enabled to begin wedded life on a liberal scale.

Early in 1773, Jefferson, Henry, and others, devised the famous committee of correspondence for the spreading of political intelligence among the colonies, and the burgesses made the two men members of that committee. In the summer the governor dissolved the house, but an election was soon afterwards held at which all the members were re-chosen and appeared in their seats in the spring of 1774. Again the house was dissolved by the governor; but not until after passing a resolution offered by Jefferson to observe the 1st of June in fasting, humiliation, and prayer, because of the adoption in parliament of the Boston port bill. After the dissolution the burgesses met secretly and proposed a convention of deputies, to be chosen by the people and to meet Aug. 1. Of this convention Jefferson was made a member, but illness prevented his attendance. This body was to choose delegates to the general congress of the colonies, and Jefferson wrote elaborate instructions for the guidance of the congressional delegates. These he sent to Peyton Randolph, the presiding officer of the convention. Some time afterwards, the burgesses directed the printing of these instructions, and the first of Jefferson's political writings appeared as "A Summary View of the Rights of British America." This document was revised by Edmund Burke and published in England, a circumstance which Jefferson supposed was the reason for including his name with others as a traitor in a bill to punish sedition. This "Summary" was a forcible argument for the right to resist oppressive taxation, and many of its points bear a close resemblance to certain parts of the Declaration of July 4, 1776. It was so radical that the convention refused to adopt it, most of the members still hoping for some peaceable compromise with the mother country. Jefferson was a member of the second Virginia convention, which met in the spring of 1775, and was one of the committee that reported a plan of defense. In the choice for members of congress Jefferson was selected as the substitute for Peyton Randolph, whose duties as governor of the colony might prevent his attendance. At the meeting of the burgesses June 1, Jefferson, though not a member, prepared the answer of the Virginia assembly to the conciliatory propositions of the home government. On June 13 Washington appointed Jefferson commander-in-chief of the forces of the colonies, and this act placed the colonies in open resistance to the British government. In congress Jefferson's arrival was impatiently awaited; and when he came his bold and vigorous reply to lord North's "conciliatory proposals" was cordially approved. This document and the "Summary" gave him high position among the ablest men in congress; and though never making long speeches he was in committee so "prompt, frank, explicit, and decisive," says John Adams, that he quickly won the warmest respect of his fellow-members. He was one of a committee to prepare a declaration of the reasons for an appeal to arms, and he and John Dickinson wrote the document which congress adopted. Jefferson was then requested to prepare the reply of congress to the proposals of lord North, and congress approved the reply and adjourned. In Nov., 1775, it was known that the last petition to the home government had been rejected. In May, 1776, Virginia instructed her delegates in congress to urge a declaration of independence by the colonies. Events were hastening to a crisis; in the early part of June a committee to prepare such a declaration was chosen, and Jefferson was put at the head. By general consent the other members of the committee looked to him to prepare the document. He consented, and wrote the American Magna Charta, all of which was his work, except two or three verbal changes proposed by Adams or Franklin. The declaration was presented to congress June 28. Four days afterwards a resolution offered by Richard Henry Lee, in obedience to instructions by Virginia, to

the same effect as the coming declaration, was adopted. On July 2, Jefferson's report was taken up, and a very warm debate followed, occupying congress exclusively until the adoption of the famous document. Some of the most eminent members made vigorous opposition. On the other side were equally eminent members as vigorously urging adoption. On Thursday, July 4, the declaration was adopted, and the record received a document that has no rival in importance in modern political history.

At the next election, Jefferson was again chosen a delegate to congress, but he declined to take his seat, believing he could best serve the cause of liberty at home, where he proposed important changes in the local laws, with a view of preparing the way for the self-government which would follow the coming independence of the colonies. During the spring he had prepared a sketch of a constitution, which he now sent to the convention in session. In the meantime a constitution had been drafted by George Mason, and the convention was about to vote upon it. The result was the addition of Jefferson's preamble to Mason's constitution, which was adopted. Jefferson was chosen to the legislature, where he labored incessantly in reforming old and proposing new laws; but he met with great opposition in the case of many of his most important propositions, and this mainly from the aristocratic and the wealthy, who feared abridgment of their privileges. One of the most important of his reforms was in the bill to establish religious freedom; another to abolish entail, and another to put an end to the right of primogeniture. At that time the condition of society in Virginia was such that the "old families" would naturally be shocked at the bold iconoclasm of Jefferson; but their opposition was in vain; the old English customs and laws were doomed, as incompatible with a republican form of government. With just pride for his share in these reforms Jefferson wrote, in the inscription prepared by himself for his monument, not only "Author of the Declaration of Independence," but also—"and of the statute of Virginia for Religious Freedom." He remained in the legislature in 1777–78, and among his leading measures was a bill to prohibit the importation of slaves. On June 1, 1779, he was chosen governor of the colony, or state, taking the chair in the darkest period of the revolution. The English were about to push the war in the south; Virginia had 10,000 men in the field, but at home was almost defenseless. The British invaded Georgia and turned northward; almost the last of Virginia's men, horses, and arms were sent to the relief of the imperiled territory. There were no coast or river fortifications, and no means of opposing a hostile fleet beyond a few small vessels and gunboats poorly equipped and feebly manned. The enemy seized Hampton and Portsmouth, and the traitor Arnold, with 2,000 men, moved up the James without serious opposition, entering Richmond, the capital, Jan. 5, 1781. The governor and other officers were compelled to leave. Arnold plundered the town, burned a portion of it, and sailed away. In April Cornwallis sent Tarleton to capture or disperse the Virginia legislature, then assembled at Charlottesville. He surprised, but did not capture them. Jefferson, who was at Monticello, near Charlottesville, hurried away his family, gathered his more valuable papers, and followed them. Tarleton had been sent especially to seize governor Jefferson, but his men stopped so often to plunder that he failed. Jefferson's term of office expired a day or two before Tarleton's foray. For his conduct at this time Jefferson was widely censured, and he felt the adverse criticisms keenly, to which mental suffering was added the loss of his wife within this period of trouble. He retired to his home, but was soon called upon by congress to become one of the commissioners to make the treaty of peace with England; but matters had progressed so far before he could sail that the appointment was revoked. He had been chosen a member of congress, and was chairman of the committee to whom the peace treaty had been referred. At the following session of congress he became active and prominent in legislation, proposing the system of coinage for the government, and preparing a plan for the temporary government of the western territory. His plan was adopted with only one important amendment; he had provided for the total abolition of slavery after the year 1800; but to this congress would not agree.

In May, 1784, Jefferson, John Adams, and Franklin were sent to Europe under a general power to make commercial treaties. Jefferson took his eldest daughter with him, and joined his associate commissioners in Paris in July. Important treaties were made with Prussia for trade, and with Morocco for the prevention of piracy. By these and other agreements blockades were abandoned, contraband articles were no longer to be confiscated, and the axiom that "the flag covers the cargo" was established. Efforts were made with England, but she would not listen to treaty propositions. About this time Jefferson published the first of his "Notes on Virginia." In 1785 he succeeded Franklin as minister to France, and in the course of his duties procured many commercial advantages for the new republic. He traveled in Italy and Germany, and in Paris became intimate with D'Alembert, Condorcet, and other extreme liberals, with whom he seemed to have an affinity. The effect of these associations was to make him through life a warm friend of the French people. In 1789 he returned, and under Washington became the first secretary of state. The organization of the government had defined political parties, and hardly was Jefferson in office before he was recognized as the republican (afterwards democratic) leader, while Alexander Hamilton was at the head of the federalists. Hamilton favored a strong federal government; Jefferson stoutly insisted upon state sovereignty and the greatest practicable limitation of the federal power.

Hamilton, however, was successful in most of his propositions. His system of finance was approved, although violently opposed by Jefferson and Randolph. Early in 1792 Jefferson made an exhaustive report on the relations between Spain and the United States, concerning boundaries, treatment of citizens, Indian invasions, the return of fugitives, and various commercial matters. In the war between France and England, 1793, the question of neutrality rose into great importance. Jefferson and his followers were warmly in favor of France, and were ready to send fleets of privateers against English commerce. The federalists (with no love for England, although so charged) insisted that the United States should keep out of the trouble; that no cause of complaint should be given to either of the belligerents; that America should keep peace and friendship with all governments, but should beware of entangling alliances with any nation. Washington issued a neutrality proclamation, under Jefferson's advice; and at the same time the latter advised that Genest, who was here as minister from France, should be officially received. The conduct of Genest in fitting out privateers in American ports raised great excitement, which was not quieted until long after his government had recalled him. Jefferson was in favor of the mildest treatment of the offender, while Hamilton and others were for extreme and summary measures. This episode created a bitterness between Jefferson and Hamilton that was never removed.

On the last day of 1793 Jefferson resigned his secretaryship and went to his home at Monticello to attend to his private business. Washington's announcement in Sept., 1796, that he would not be a candidate for a third term set politicians at work, and the result was that John Adams, then vice-president, and Thomas Jefferson, were nominated by their respective parties for the office of president. Adams, having the highest vote, was chosen president, and Jefferson having the next highest, was, under the law of the time, chosen vice-president. Like most vice-presidents down to the present day, while in office he was practically out of political life, and he passed the greater part of his time at his country home. He was, however, a close observer, and could not fail to have a deep interest in the great reaction of feeling in regard to France that followed the reign of terror. The president's war-message in the early part of 1797 created intense excitement; congress declared all treaties with France void; ship-masters were instructed to resist search; large appropriations were made for defense; the alien and sedition act was passed, with other kindred acts; and in spite of the republican opposition, that party was driven as a last resort to contest the constitutionality of the alien and sedition laws, and to work up their state organizations, in which capacity they produced the Virginia resolutions of 1798 and greatly furthered the cause of state sovereignty. The excitement regarding France was soon over, and a minister was sent to that country in 1799. Washington's death, in Dec. of that year, for a brief period hushed partisan strife; but only a few months passed when the debate became more fierce than ever. The republicans gained ground rapidly, and at the presidential election in 1800 the electoral vote (except a few which might be called "scattering") was exactly divided between Jefferson and Aaron Burr, both republicans. The house of representatives, after a long struggle and 36 ballots, made Jefferson president, and Burr, according to the law, took the second place. Jefferson placated the federalists, made few removals of public officers, and avoided all action that would be likely to impair his popularity. The stately formalities of the previous administrations were ignored; Jefferson sent his messages to congress by the first boy or man at hand, and he refused to receive the customary address from that body. Radical changes were going on in the dress and manners of the people. Trousers took the place of knee-breeches, and the old courtliness gave way to a freedom of manners that could not fail to shock the members of the old aristocracy.

The first term of Jefferson's administration was quiet, although some important events occurred, the chief of which was the purchase of Louisiana from France at the price, comparatively low, of $15,000,000. Explorations across the continent were made at the president's request. A little war with Tripoli and the stopping of Algerine piracy were other events. In 1804 Jefferson was re-elected, with George Clinton for vice-president, there being no real opposition, since the federal party had previously gone to pieces. Their great leader Hamilton was killed in a duel with Burr in July of this year. In his second term Jefferson had to deal with the wild operations of Burr in the attempted raid upon Mexico, involving war with Spain, and other serious consequences. The prominent office and the still more prominent position held by Burr made his rash movements and his arrest and trial matters of the greatest importance. Such a trial could not fail to assume a political aspect, and the opponents of the government violently denounced it as partisan persecution. No doubt Jefferson was satisfied with Burr's acquittal; he had done his duty to all our foreign relations in the arrest and trial, and they would have no just cause of complaint. Another event during Jefferson's second term gave him much uneasiness. This was the British orders in council, followed by the Milan decree issued by Bonaparte. The effect of these, though not directed at the United States, was to ruin the foreign trade of the country and spread financial disaster over the land. But these orders and decrees were of far less political importance than the "right of search" claimed and exercised by Great Britain, under which vessels of the United States on the high seas were boarded and searched for English subjects. England then held the doctrine "once a subject always a subject."

The impressment of American sailors went on in spite of protest, until a crisis was precipitated in June, 1807, by the English ship *Richard* firing into the American frigate *Chesapeake*, and boarding and carrying away four of her men on the charge of being British deserters. The country flamed up in excitement; the president proclaimed against the coming of English armed ships into the ports or water-jurisdiction of the United States, and preparations looking to probable war were made, the first act being the embargo, which was declared in consequence not only of the hostile attitude of England but of France also. As the embargo prohibited all American vessels from leaving home ports it amounted to an entire suspension of foreign trade. The federalists started anew into life, and made the most vigorous opposition to the embargo, which was repealed Feb., 1809, only a few days before Jefferson finally left the executive chair. With March 4, 1809, his political life came to a close. He retired to Monticello, and took no further part in national questions. His plantation had most of his care, but he found time to give valuable assistance in establishing a college near Charlottesville, out of which grew the university of Virginia. He was rector of the college in 1819, and during his life took great pride in the institution, so much so that he wrote, as a part of his epitaph, "Father of the University of Virginia." Early in 1826, having fallen into serious financial embarrassment, owing chiefly to his prodigal hospitality, Jefferson was authorized by a legislative act to dispose of his plantation by lottery, but the plan was never carried into effect. In June his health failed rapidly, and on the evening of July 3 it was clear that he was fast passing away. But he lived until the afternoon of the next day, dying a few hours earlier than his presidential predecessor, John Adams, who was then lying at the point of death at the family mansion in Quincy, Mass. In person Jefferson was tall (6 ft. 2½ in.), with a bony but well-developed frame, angular features, ruddy complexion, sandy or reddish hair, and light hazel eyes. It need hardly be said that he was a man of positive opinions and convictions, and quick and firm in decision. His notions of democratic equality touched the extreme; he would not even tolerate the innocent prefix of "Mr." because it was a title. His views on religion were so liberal that he was freely accused of infidelity. He had profound respect for the moral character of Christ, but no belief in the divine redemption through Christ's work. In society he was a leveler, if not an iconoclast. He desired to reduce the aristocracy, whether of blood or wealth, and to elevate the mass of the people. Such ideas would naturally oppose human slavery, which he considered to be a great political and moral evil, saying, in reference to it, "I tremble for my country when I remember that God is just." Although he never made a formal speech in his life, he was the ablest political leader of his time. He was quick to perceive and prompt to act. Much of his vast political work was done with the pen, and no statesman of the time had any such amount of correspondence as was sent out and received at Monticello. His home might be likened to a modern telegraphic center, where the wires come together from the farthest corners of the country. He had fair scientific acquirements, and took much interest in natural history. He was a good husband, an affectionate father, and a forbearing master. Where his friendship was given it was warm and sincere; while as a host to strangers he was regarded as exceptionally charming. His writings are widely known. The more important are *Notes on Virginia; Manual of Parliamentary Practice;* and *The Writings of Thomas Jefferson*, being his autobiography, correspondence, reports, messages, addresses, and other writings, official and private. The originals of the last named work were purchased by congress and issued in 9 vols. by the government.

JEFFERSON CITY, capital of Missouri, United States, on the s. bank of the Missouri river, 125 m. from St. Louis, with which it is connected both by the river and the Pacific railway. It has a brisk trade with the hunters, and overland emigrants to California and Utah. The city has a state-house, governor's residence, state penitentiary, etc. Pop. '70, 4,420.

JEFFERSON CITY (*ante*), the capital of Missouri and co. seat of Cole co.; pop. '80, 5,271 ; is situated on the right bank of the Missouri river, 143 m. from its junction with the Mississippi. It is on the line of the Missouri Pacific railroad, by which it is connected with St. Louis. The site is commanding and affords a fine view of the attractive scenery on the opposite bank of the river. The city is built on an elevation, and contains a number of handsome edifices, including the governor's residence, the state penitentiary, state-house, and 8 churches.

JEFFERSONIA, a perennial herb, with matted fibrous roots and glabrous leaves; named in honor of Thomas Jefferson; sometimes called twin-leaf; sepals 4, soon falling off; petals 8, oblong, flat; stamens 8, oblong-linear, on slender filaments; ovary ovoid, soon becoming gibbous (larger on one side than on the other); stigma, two-lobed; pod, pear-shaped, opening half-way round horizontally, the upper part making a lid; seeds in many rows on the lateral placenta. It belongs to the order *berberidaceæ*, sometimes called the barberry family.

JEFFERSONVILLE, a city of Clarke co., Ind.; pop. 9,357. It is situated on the Ohio river, 5 or 6 m. from New Albany and 108 m. from Indianapolis, and is connected with Louisville, Ky., which is directly opposite, by an iron railroad bridge, the longest of its kind in the United States, and which unites the railroad system of the north to that of the south. The city is built on high ground, and commands a fine view of

Louisville and of the surrounding scenery. Railroads terminating here are a branch of the Ohio and Mississippi, and the Jeffersonville, Madison and Indianapolis railroad, the latter crossing the river on the iron bridge. There are a number of important manufactories in the city of railroad cars, steamboats, farm implements, etc. An arsenal, state-prison, and 14 churches are among the public buildings.

JEFFERSONVILLE, Ind. See page 886.

JEFFERSONVILLE, Va. See page 886.

JEFFREY, Francis, Lord, a celebrated Scottish critic and lawyer, was born in Edinburgh, Oct. 23, 1773; studied classics, logic, and belles-lettres at Glasgow and Oxford, and law at the university of his native city. In 1794 he was called to the bar. Two years before this he had become a member of the Speculative society (in connection with the university). Jeffrey soon became prominent among the members by the keenness and liveliness of his intellect, and the elegance of his literary taste, but his progress at the bar was slow, partly on account of the antipathy which then existed to literary lawyers, and partly on account of his political opinions. Meanwhile he and several other young men then residing in Edinburgh, ambitious of finding a wider outlet for their talent than the discussions in the Speculative society or the practice of the bar afforded, conceived the idea of starting a critical journal. The first proposer of the scheme was the rev. Sydney Smith. The result was the establishment of the *Edinburgh Review* (q.v.), of which Jeffrey became editor, an office he retained till 1829. His own contributions were generally the most brilliant and attractive that appeared in its columns. On ethics, politics, and many of the questions affecting the social well-being of man, he has written with much clearness, penetration, and force; but the thing on which he is said to have placed the highest value was his *Treatise on Beauty* (see Æsthetics), a charming melange of criticism, description, and sentiment, but of doubtful philosophic worth. After some years Jeffrey's practice at the bar began to increase; in jury trials he shone to great advantage, and particularly in the trials for sedition between 1817 and 1822. In 1830 he became lord-advocate for Scotland; and after the passing of the reform bill he was returned to parliament for the city of Edinburgh, which he continued to represent till 1834, when he gladly exchanged the turmoil of party politics for the duties of a judge of the court of session. During the latter years of his life, Jeffrey resided at Craigcrook castle, in the vicinity of Edinburgh, where he died, Jan. 26, 1850. A selection of his essays, in 4 vols., appeared in 1844. A biography of Jeffrey by his friend, Henry lord Cockburn (q.v.), a brother-judge of the court of session, was published in 2 vols. (Edin. 1852). See also, Carlyle's *Reminiscences.*

JEFFREYS, George, Lord, 1648–1689; an English lawyer, who rose to high position on the bench, but disgraced the ermine and rendered his name infamous forever by his needless cruelties and the unparalleled brutality of his manners. He was the son of a squire of small means, who, however, contrived to give him an education, which only rendered his evil propensities stronger. Macaulay said of his intellect, that "across labyrinths of sophistry, or through masses of immaterial fact, it would go straight to the true point." Such manners as he possessed were marked by a brutal ferocity which was never equaled by the worst ruffians or infamous characters among those whom he condemned. The very name of lord Jeffreys, even after the lapse of centuries, is synonymous with cruelty. He commenced practice at the Old Bailey, and was first common sergeant and then recorder of London, and, being a willing slave of the court, rose in his profession, until, in 1683, he became chief-justice of the king's bench. It was in this capacity that he traversed the western circuit, when the severity of the sentences which he passed upon all who had taken part in Monmouth's fatal rebellion gained for it the name of the "Bloody Assizes;" he is said to have condemned 700 of these offenders to the scaffold, and boasted of his action. He was made lord high chancellor by James II., but on the outbreak of the revolution and the downfall of his patron, James II., fearing the treatment which he had reason to expect from William III., he attempted to leave the country in the dress of a common sailor; but was recognized in spite of his disguise and taken to the Tower, where he died. He was created a peer by James II., with the title of baron Jeffreys of Wem, but, although he had 12 children, the family became extinct in a comparatively short time, and the title lapsed.

JEFFRIES, John, 1744–1819; graduated at Harvard, and afterwards traveled in Europe, and attended classes at the medical colleges in London. He visited Scotland, and received the degree of M.D. from Aberdeen university. Returning to America, he practiced at Boston until that city was evacuated by the British, when he accompanied the English troops to Halifax. He distinguished himself as an army surgeon, and in 1779 was appointed surgeon-major of the British forces in America, and was for a short time in Savannah, Ga. Although he was offered a similar position with the troops in India, he declined; he was greatly interested in scientific experiments, and more especially in the construction of balloons, with a view to atmospheric experiments, and accompanied François Blanchard, in his balloon trip from Dover across the channel, on which occasion the aeronauts landed in the midst of the forest of Guines in France. Dr. Jeffries received many testimonials for this exploit from the various scientific societies of Europe and America. Returning to his native town, Boston, he continued the practice of his profession in that city. He proposed giving a series of anatomical lectures there, but the popular feeling against it was so strong that a mob broke into his room, seized the

subject which was to illustrate his lecture, and by their violence put a stop to the course of lectures.

JEHOSHAPHAT, fourth king of Judah, B.C. 915–890, son of Asa, connected by the marriage of their children with Ahab, king of Israel, and was his ally at the battle of Ramoth-Gilead, suffering defeat from the Syrians. He was an ally of Ahaziah, king of Israel, but was unfortunate in a naval venture which he sent on an expedition to Ophir, the fleet never reaching harbor. In alliance with Jehoram of Israel, and the king of Edom, he made a successful campaign against Moab. In the closing years of his reign Jehoram, his son, shared the throne with him. He is celebrated for his successful opposition to the worship of idols, for the respect which he inspired in the minds of contemporaneous rulers, and for the prosperity of a government in which agriculture and commerce were encouraged. Jehoshaphat signifies "Jehovah's judgment."

JEHOSHAPHAT, VALLEY OF, a valley in which the prophet Joel predicts that God would, after the return of Judah and Israel from captivity, gather all the heathen, and there judge them for their evil treatment of Israel. The prophet may have had in mind the great victory of Jehoshaphat in the wilderness of Tekoah over the hordes of his enemies. Or it may mean a valley in which some great victory would be won, which should utterly discomfit the ancient enemies of Israel, resembling the victory obtained by Jehoshaphat over the Ammonites, Moabites, and Edomites, 2 Chron. xx. 22–26. Where this valley was we do not know, but in modern times the name is applied to the deep ravine which separates Jerusalem from the mount of Olives, and which was formerly the bed of the brook Kedron. When the name was first given to this spot is not known. Neither in the Bible nor Josephus is there any trace of it. The only name in both for this gorge is Kedron or Cedron. We find the new name first given in the 4th c. by Eusebius and Jerome. Since then the name has been adopted by travelers of all ages and all faiths. Jews, Moslems, and some Christians believe that here is to be the scene of the last judgment. The steep sides of the ravine are crowded with the sepulchers of the Moslems and the Jews, all awaiting the assembly of the last judgment. This valley is fully described by Robinson in his *Biblical Researches.*

JEHO'VAH (Heb. *Yehovah;* more correctly, *Yahve*, *Yahăveh*, or *Yahăvâh;* in poetry, *Yâh;* generally believed to be derived from the verb *haya*, "to be," though scholars are far from unanimous in regard to its etymology) is one of the names employed in the Old Testament. Its meaning—if the root be *haya*—is, "He that is," "the Being;" or, since the word contains all the forms of the past, present, and future tenses, "the eternal One." It is generally employed to express a different conception of the Deity from that which is contained in the word *Elohim* (q.v.). The latter appears to be the older term, in use before the Hebrews had attained a national existence, while *Jehovah* exclusively seems to denote the national God, supreme over all other deities, and who, under this name, had, according to Exodus vi. 3, not "made himself known" to the patriarchs before the time of Moses. That Jehovah is specifically the God of the Hebrews is clear from the fact, that the heathen deities never receive this name; they are always spoken of as *Elohim.* Moreover, the altars, the sacrifices, the festivals, the tabernacle, the temple, the priesthood, and the prophets, all belong emphatically to Jehovah. Gideon shouts, "The sword of Jehovah and of Gideon," as a Roman warrior would have invoked the aid of Jupiter. In one sense, the term Jehovah is less broad and universal in its application than Elohim, who, in the first verse of the Bible, appears as the creator of heaven and earth, and who is God over all, irrespective of nations; but in another sense, it clearly indicates an advance in religious conception. While *Elohim* is introduced more as an Almighty Creative Power than a "Being," Jehovah is God in full personal relation to man—he speaks to his creatures, makes covenants with them, becomes their law-giver, and desires their homage and worship. The Hebrew writers even run their representations of the Divine personality into what seem to us the extremest forms of anthropomorphism.—Deep reverence for the Deity and the divine name has led the Jewish church to the substitution of Adonai (*Lord*) in the *pronunciation* of Jehovah, the latter being voweled by the Masoreths like the former.

A very nice and difficult controversy with respect to the authorship and unity of the Pentateuch, has long been carried on among scholars in connection with these two names. See GENESIS and PENTATEUCH.

JEHOVAH (*ante*), the name given in the Old Testament to God as revealing himself to man from the beginning of history, and to become incarnate in the fullness of time. After the narrative in the first of Genesis, ascribing the creation of the heavens and earth to God, there is a repeated account of a part of the work, in its particular relations to men, which is ascribed to Jehovah God, who is said to have appeared to Adam, Eve, Abel, and Cain. Afterwards, generally named Jehovah, sometimes God and Jehovah God, he appeared to Noah, exercising sovereign control over men in sending the deluge, in delivering from it, and promising that there should be no repetition of it; and, when the number of mankind had again increased, in confounding their speech so that they were scattered abroad. At and after the calling of Abraham a more particular account of the divine manifestations is given, in which the name most frequently employed is Jehovah; and with it are interchangeably used Lord Jehovah, Jehovah God, Almighty God, and God. Frequently the divine appearance was in human form, receiving the names

Jehovah, Angel Jehovah, and God; and administering providential government in blessing Abraham, delivering Lot, and destroying the cities of the plain. These divine manifestations were repeated to Isaac and Jacob, the latter of whom, at the close of his life, thus summed up the account of them: "God before whom my fathers Abraham and Isaac did walk, the God who fed me all my life long, the Angel who redeemed me from all evil." In the deliverance of Israel out of Egypt a great advance was made in the manifestation of Jehovah. The Angel Jehovah, called also Jehovah and God, appeared to Moses at Horeb, sent him to Pharaoh, performed the mighty works which resulted in the release of Israel, divided the Red sea, gave the law at Sinai, administered in the wilderness the divine government of mercy and judgment down to the death and burial of Moses; brought the people into Canaan under Joshua; and governed them during the times of the judges, kings, and prophets.

The name Jehovah, used thus in the Old Testament, was translated in the Greek version by ὁ κυριος (Lord), which by that fact became familiar to the Jews and was adopted in the New Testament as a title of the divine Redeemer incarnate among men. In this way it came about that in the English version of the Bible the Hebrew name Jehovah was translated the Lord. Concerning the signification of the Hebrew name, derived as it evidently is from the verb denoting being or existence, two opinions are held: first, that it represents the eternal existence of God; and second, that in the Old Testament it pointed forward to his existence as it would be manifested in his coming to be the Redeemer. All admit that its form in the Hebrew Bible—Jehovah—is a modification of the original, resulting from the practice of the later Jews in pronouncing *Adonai* instead of it, whenever they came to it in the text, and in transferring to it the vowels of the substituted word in order to mark the change. Its proper form is the future of the verb from which it is derived; and its meaning seems to be pointed out by God's own answer to the question of Moses concerning the name by which God should be spoken of to Israel: "Say, 'I WILL BE' hath sent me unto you; and say, moreover, Jehovah, God of your fathers, hath sent me unto you; this is my name forever, and this my memorial unto all generations." This being the meaning of the name, some go further and say that, probably, it was first used by Eve at the birth of her first-born son when she named him Cain, meaning acquisition, and said "I have acquired a man, even him who will be," that is the coming One, the promised deliverer. Such being the origin of the word it was adopted, as those who hold this theory think, by the Lord as a name by which he would be known among men as the Redeemer rhrough all generations. An argument against this view is that the particle prefixed to Jehovah in this text, translated in the English version "from," often has the force of a preposition, and from the beginning of Genesis to the cessation of the deluge is certainly so used ten times. It is therefore possible that Eve may have meant, I have acquired a man *with* the Lord, that is by his help. The argument for the view is that the prefixed particle often has only a demonstrative force, giving emphasis to the word before which it is placed; and that in the part of Genesis just specified it is so used without question 108 times (49 prior to the particular instance referred to and 59 after it) to give emphasis to each thing brought forward in succession as created or divinely ordered. The probability, therefore, so far as the use of the word is concerned, is, it is said, more than ten to one in favor of the view. That Eve supposed her first-born son was the promised deliverer seems to be indicated by her disappointment when, a second having been born, she named him *vanity*. And if she supposed so, why should it not be thought that the particle prefixed to the "coming One" was intended by her to point him out emphatically, as in the more than one hundred instances which it so much resembles?

If the meaning of Jehovah be the coming One, the deliverer, it explains the declaration of God to Moses that he had been known to Abraham, Isaac, and Jacob as God Almighty, but not by his name Jehovah. That they were acquainted with the name as ascribed to God is manifest; but it is also certain that while the Lord had exhibited his great power in providing for and protecting them he had not by any signal interposition made himself known as the deliverer. This he was now about to do, in stretching out for the deliverance of Israel a mighty hand, such as the world had never seen, but which has been held in remembrance ever since. As the fullness of time drew nearer, the prophets gave increased prominence to Jehovah as the coming One: from the comforting words of Isaiah, "Prepare ye the way of Jehovah, behold Jehovah God will come with strong hand;" to the closing words of Malachi, "The Lord whom ye seek shall suddenly come to his temple, even the Angel of the covenant whom ye delight in." When the time had arrived, John the Baptist announced the Lord as the coming One after him; and from the prison sent the inquiry to him, Art thou the coming One? And as, at the beginning, Jehovah himself had promised his coming, so, at the end, he opens the apocalypse with the declaration, "I am he who is, who was, and who is to come, the Almighty;" and closes it with the promise, "Surely I come quickly."

JEHU, eleventh king of Israel, B.C. 883–855; son of Jehoshaphat, and grandson of Nimshi, beginning his military career as one of the guards of Ahab. He was distinguished as a charioteer for his rapid driving, and a certain reckless vehemence of manner. The first mention made of him in history is his appearance, with his comrade, Bidkar, on a journey from Samaria to Jezreel, riding in company with Ahab, when he

nears the warning of Elijah against the murderer of Naboth. He is mentioned in the vision at Horeb as the coming king of Israel, who should be an instrument of vengeance upon Israel, but was annointed by a prophet of Elisha in the reign of Ahaziah and Jehoram, when as a commander in the Israelitish army, posted at Ramoth Gilead, at a council of war, there appeared unexpectedly at the door of the tent a disciple of Elisha, who poured the contents of a vial of sacred oil upon his head, announced the propheey of Elisha that he was to become king of Israel, and that the house of Ahab should fall by his hand, then vanished from their midst. On this suggestion he was proclaimed king with the wildest enthusiasm. He at once appointed Bidkar captain in his place, and having by a strategic movement brought himself face to face with Jehoram on the field of Naboth, killed him by a shot from his bow. At that moment he recalls to Bidkar's remembrance the scene of the ride with Ahab, and the warning of Elijah. Riding into the conquered city he caused Jezabel to be thrown from the palace walls, killing her instantly. He required, as proof of the loyalty of Samaria, that the heads of all the royal princes should be brought to him; the next morning 70 human heads lay in a pile at the palace gate. He also slew 42 brothers of Ahaziah, sons of the late king of Judah, whom he met on his way to Samaria. Having made an ally of Jehonadab the Reehabite, he proclaimed a festival, at which he assembled all the ministers and chief adherents of Baal, whom he provided with sacerdotal vestments so that the worshipers of Jehovah might not be confounded with them. The multitude of these idolaters filled the great temple of Samaria, around which, to prevent the escape of any, guards were placed. The chief sacrifice Jehu himself offered in the fervor of his pretended zeal. After he had made himself doubly sure that none except the adherents of Baal were present, he gave the signal to his trusted guards, who, by a sweeping massacre, cut off the chief heathen population of the kingdom. Thus a staggering blow was struck at a form of idolatry which, from its entrance among the Israelites, had been the source of unbounded licentiousness, varied abominable immoralities, and cruel infanticide. But after this Jehu's hostility to idolatry manifestly declined, and for fear of adverse political consequences to himself, he allowed the worship of the golden calves to continue undisturbed. For the measure of right that he had practiced his dynasty was continued through four generations, but because of his imperfect obedience his prosperity was cut short. He died in outward tranquillity and was buried in Samaria. His name has passed into a type of fierce and fiery zeal uncontrolled by the grander forces of righteousness and the Divine love.

JEISK, or Eisk, a. *t.* of Russia, in the country of the Kuban Cossacks, or Black sea Cossacks, on the eastern shore of the sea of Azov, 60 m. s.w. from Azov. It stands on the shore of a small land-locked bay, into which flows the river Jeisk. It was founded by imperial ukase in 1848, with a view to its being a trading sea-port, and an entrepôt for the agricultural produce of the surrounding country. Considerable privileges were guaranteed to its inhabitants and it has rapidly sprung into importance. Pop. '80, 30,000.

JEJEEBHOY, Sir Jamsetjee. See Jeejeebhoy, *ante*.

JEJUNUM, that portion of a small intestine which is situated between the duodenum and the ileum, and forming about one-third of the length of this portion of the intestinal tract. It derives its name from the fact that in *post-mortem* examinations it is almost always found empty (Lat. *jejunus*, empty). The mucous membrane of the whole of the small intestine is very vascular, but that of the jejunum is more vascular than that of the ileum, and its coats are also rather thicker. The mucous membrane of this whole tract is also increased in surface by the existence of partial cross-bands called *valvulæ conniventes*, but these are much more developed in the jejunum than in the ileum or in the duodenum. In the jejunum these valves increase the mucous surface to double what it otherwise would be, the folds occupying between one-third and one-half of the circumference, and from one-third to one-half an inch wide. See Ileum.

JELALABAD', a t. of Afghanistan, stands near the Cabul, in a fertile plain, which is separated from Peshawur by the famous Khyber Pass. It thus occupies a commanding position on the grand route between India and Central Asia. Pop. about 3,000. The place acquired a historical interest during the Afghan wars, having been heroically held by sir Robert Sale (1841–42), notwithstanding the fatal disasters of the first expedition, till it was relieved by the triumphant advance of the second. See Afghanistan.

JELATOM', Jelatina, or Elat'ma, a t. of Rusisa, in the government of Tambov, is situated 158 m. n. of the town of that name, on the left bank of the Oka. Woolen cloths, vitriol, and sulphur are here manufactured. Pop. '80, 7,000.

JELETZ', a town of Russia, in the government of Orel, is situated 110 m. e.s.e of the town of that name, on the Sosna. In the vicinity are extensive iron-mines, and the town has become famous for its wheaten flour, which is exported throughout the whole of Russia. Pop. '80, 30,540.

JELLACHICH DE BUZIM, Joseph, Baron, a distinguished Austrian general, and Ban of Croatia, was b. at Peterwardein in 1801. His father, the descendant of an old Croatian family, was a general in the Austrian service, and attained some celebrity in the Turkish wars, and in those of the French revolution. The baron was early

employed in military service on the Turkish frontier, and distinguished himself by his courage and skill. He succeeded also in winning in a high degree the confidence of the Croatians, so that in 1848 the court of Vienna was glad to appoint him Ban of Croatia, in order to secure the support of the Slavonian Croatians against the Magyars of Hungary, and he took a very active part in the suppression of the Hungarian rebellion. He not only displayed talents for government and military command, but also for poetry. He died at Agram, June, 1859. A collection of his poems was published at Vienna in 1850.

JELLY-FISH. See ACALEPHÆ, *ante.*

JE'LUM. See JHELUM.

JEMAP'PES, a village of moderate size, not far from Mons, in the Belgian province of Hainault, which has acquired a historic celebrity from the victory won here by the French republicans, 40,000 strong, under Dumouriez, Nov. 6, 1792, over the Austrians, who were in nearly equal force. By this victory, the way into Belgium was opened to the French, and the spirits of the army and of the people greatly elevated by the first great victory of their raw levies over the disciplined and experienced Austrian troops. Pop. about 5,000.

JE'NA, a t. in the grand-duchy of Saxe-Weimar-Eisenach, and formerly the capital of the duchy of Saxe-Jena, is most beautifully situated in a romantic valley at the confluence of the Leutra with the Saale. Pop. '80, 10,337. It derives celebrity chiefly from its university, but also from the great battle fought here between the French and the Prussians.—The *university of Jena* was founded about the year 1547 by the elector John Frederick of Saxony, who intended it to supply the place of Wittenberg as a seat of learning and of evangelical doctrine. It soon acquired a high reputation. The imperial authorization was obtained, after some delay and difficulty, in 1558. It is the university of the minor Saxon states, and is supported by contributions from them all. Its library contains upwards of 200,000 volumes. The most flourishing period of the university was that of duke Karl August, a zealous patron of art and science, 1787–1806 A.D. To have obtained academic honors in Jena used to be no small recommendation to employment in other German universities, and many of the most distinguished ornaments of other universities have been students of this. Some of its professors were among the first and most successful supporters of the philosophy of Kant. Fichte founded a new school of philosophy here in 1794, and the names of Schelling and Hegel are also connected with Jena. The brothers Schlegel, Voss, Fries, Krause, and Oken have added to its celebrity in literature and science. The faculty of medicine, as well as those of theology and law, has reckoned many distinguished names. The most eminent theologians in recent times have belonged to the liberal school. There are in all about 70 professors and lecturers, and under 500 students. The *Jenaische Literaturzeitung,* under the auspices of the university, is one of the most valuable literary and scientific journals.

The great battle of Jena was fought in the neighborhood of the town Oct. 14, 1806. The Prussian army, numbering about 70,000 men, was under the command of the prince of Hohenlohe; while the French, commanded by Napoleon, amounted to 90,000. The former were completely defeated. On the same day, Davout defeated the aged duke of Brunswick at Auerstädt, with 30,000 French against 60,000 Prussians, and these two battles decided for a number of years the fate of the Prussian kingdom and of the n. of Germany. The loss of the Prussians on that eventful day and in the conflicts of the preceding days amounted to 50,000 killed, wounded, and prisoners, besides the loss sustained by the Saxons, their allies. The French gave out their loss to be 7,000, including 270 officers.

JENGIS KHAN. See GENGHIS KHAN, *ante.*

JENISEI. See YENISEI, *ante.*

JENKINS, CHARLES J., b. S. C., 1805; received his education at the university of Georgia, and Union college, Schenectady, N. Y. He was elected a member of the Georgia legislature in 1830, and was speaker when his party was in power. Although a Jeffersonian democrat, he supported Harrison for the presidency in 1840, and Clay in 1844. He was appointed in 1860 to fill a vacancy in the supreme court of the state, and held the position during the rebellion. He took a prominent part in the state convention called by president Johnson, in 1865, and was elected governor of the state under the new constitution, retaining the office until 1868, when he was superseded, under the reconstruction acts, by gen. Ruger of the U. S. army.

JENKINS, EDWARD. See page 886.

JENKINS, JOSEPH JOHN. See page 886.

JENKINS, THORNTON A., b. Va., 1811; entered the U. S. navy in 1828 as a midshipman, and rose to be rear-admiral in 1870; retired from active service, 1873. He served with the Mediterranean, African, and North and South Atlantic squadrons, until 1845, when he was deputed to investigate the light-house systems of Europe. Out of this investigation grew the law of 1852, framed by lieut. Jenkins, and under which the light-house board has been ever since administered. After serving on the coast of South America and in Central America, and in Mexico during the war with that country, Jenkins was promoted to a captaincy in 1862, and did good service during the rebellion. He had an important post at the battle of Mobile bay, and was highly commended in the report of admiral Farragut. In 1865 he was chief of the bureau of navi-

gation; 1869–71, naval secretary of the light-house board; 1871–73, in command of the East India squadron. In 1876 admiral Jenkins had charge of the exhibit of the U. S. navy department in the centennial exhibition at Philadelphia.

JENKS, Joseph, d. 1683; b. England; a metal-worker, supposed to have been the first founder and inventor in America, having settled in Lynn, Mass., in 1645. He worked in brass and iron, but experimented in mechanics in different directions, and is recorded as having received a patent in 1646 for an application of water-power to mills. He also invented a saw-mill and a fire-engine. He is said to have made the dies for the pine-tree money issued in Massachusetts in 1652. Jenks had his foundry on the Saugus river at Lynn, and in 1667 was there engaged in wire-drawing, and appears on the records as an applicant to the general court for aid in his business.

JENNER, Edward, the discoverer of vaccination, was b. at Berkeley, in Gloucestershire, on May 17, 1749, and was the third son of the rev. Stephen Jenner, vicar of the parish, and rector of Rockhampton. His scholastic education being finished, he was removed to Sodbury, near Bristol, in order to be instructed in the elements of surgery and pharmacy by Mr. Ludlow, an eminent surgeon there; and on the expiration of his term with this gentleman, he went to London, in the 21st year of his age, to prosecute his professional studies under the direction and instruction of the celebrated John Hunter (q.v.), in whose family he resided for two years. Under Hunter's superintendence, he became an expert anatomist, a sound pathologist, a careful experimenter, and a good naturalist. The influence of the master exerted a lasting effect on the pupil; and Hunter's letters, which Jenner carefully preserved, evince the affectionate feeling and community of tastes which subsisted between them. On leaving London Jenner settled at Berkeley, where his sound professional knowledge and kindly disposition soon acquired for him a large amount of practice. In 1788 his well-known memoir, *On the Natural History of the Cuckoo,* appeared in the *Transactions* of the royal society, containing the results of investigations begun at the request of Hunter. A few years afterwards, the fatigues of general practice having become irksome to him, he resolved to confine himself to medicine, and with that view he obtained the degree of M.D. from the university of St. Andrews.

The discovery of the prophylactic power of vaccination, by which the name of Jenner has become immortalized, was the result of a prolonged series of observations and experiments. His attention, whilst he was yet a youth, was forcibly attracted to the nature of cow-pox in the following manner: He was pursuing his professional education in the house of his master at Sodbury, when a young country-woman came to seek advice. The subject of small-pox being mentioned in her presence, she observed: "I cannot take that disease, for I have had cow-pox." This was before the year 1770. It was not till 1775 that, after his return to Gloucestershire, he had an opportunity of examining into the truth of the traditions respecting cow-pox; and it was five years later before he began clearly to see his way to the great discovery that was in store for him. In the month of May, 1780, while riding with his friend Edward Gardner, on the road between Gloucester and Bristol, "he went over the natural history of cow-pox; stated his opinion as to the origin of this affection from the heel of the horse [when suffering from the grease]; specified the different sorts of disease which attacked the milkers when they handled infected cows; dwelt upon that variety which afforded protection against small-pox; and with deep and anxious emotion, mentioned his hope of being able to propagate that varicty from one human being to another, till he had disseminated the practice all over the globe, to the total extinction of small-pox."—Baron's *Life of Jenner,* p. 128. Many investigations regarding the different varieties of cow-pox, etc., delayed the actual discovery for no less than 16 years, when at length the crowning experiment on James Phipps (see Inoculation) was made on May 14, 1796, and Jenner's task was virtually accomplished. This experimnet was followed by many of the same kind; and in 1798 he published his first memoir, entitled *An Inquiry into the Causes and Effects of the Variolæ Vaccinæ.* Although the evidence accumulated by Jenner seemed conclusive, yet the practice met with violent opposition until a year had passed, when upwards of 70 of the principal physicians and surgeons in London signed a declaration of their entire confidence in it. His discovery was soon promulgated throughout the civilized world. Honors were conferred upon him by foreign courts, and he was elected an honorary member of nearly all the learned societies of Europe. Parliament voted him, in 1802, a grant of £10,000, and in 1807 a second grant of £20,000; and in the year 1858 a public statue in his honor was erected in the metropolis. His latter days were passed chiefly at Berkeley and Cheltenham, and were occupied in the dissemination and elucidation of his great discovery. He died of apoplexy at Berkeley in Feb., 1823.

JENNER, Sir William, b. England, 1815. He was professor of pathological anatomy at University college, London, and professor of clinical medicine in the same institution for many years. In 1861 he was named physician in ordinary to the queen. He was a personal friend of the late prince consort, whose death-bed he attended. He was made a baronet in 1858, and K.C.B. after the recovery of the prince of Wales in 1872. He has published *Gulstonian Lectures,* but his fame will probably rest upon his *Identity and Non-identity of Typhus and Typhoid Fevers.*

JENNINGS, a s.e. co. in Indiana; watered by the branches of the Muscatatuk river; 375 sq.m.; pop. '80, 16,453. It has an undulating surface, and is fertile and productive. It is traversed by the Madison and Indianapolis, and Ohio and Mississippi railroads. Co. seat, Vernon.

JENNINGS, WILLIAM, 1701–97; b. England; gained notoriety and lasting fame from his miserly habits. When a boy he was attached to the personal service of George I. as a page; but on arriving at his majority, he went into retirement on his family estate in Suffolk, where he passed the most of his time, living the life of a hermit, denying himself that he might accumulate wealth. He visited London during the season, making a profitable business of loaning money. He died intestate, his will not being executed, and his immense property, valued at £1,000,000, was never divided, and the disposition of it is still indefatigably claimed by those of his name in England and America.

JENYNS, SOAME, 1704–87; b. London; was educated at Cambridge, and represented Cambridgeshire in parliament, 1742. He became a somewhat noted wit, and wrote poetry; his first work being a poem on the *Art of Dancing*. Dr. Johnson criticised his *Free Inquiry into the Nature and Origin of Evil*. In a later work, *A View of the Internal Evidences of the Christian Religion*, the author narrated his own skepticism and subsequent conversion. This work had formerly the reputation of being the best published argument in favor of Christianity.

JEPHTHAH, ninth judge of the Israelites, B.C. 1256–50, illegitimate son of Gilead, of the tribe of Manasseh. Driven from home by his brothers, who were born in wedlock, he removed to the land of Tob, beyond the Hebrew frontier. He was distinguished for bravery and skill in arms, and was the leader of a number of adventurous men whose fortunes were as desperate as his own. He led a band of brigands, whose profession is considered, in the east, one not destitute of honor if exercised in moderation and against natural enemies, public or private. He was chosen capt. of the Israelitish forces in their opposition to the Ammonites, and accepted the position, with the stipulation that, if victory attended their arms, he should still remain their ruler. His diplomatic dealings with the Ammonites in the preliminary movements have been deemed worthy of notice; they being the original owners of the land, which he claimed by right of conquest, fighting the battle on that issue. He defeated them with great slaughter in several pitched battles, and pursued them to utter discomfiture and rout. He made a vow to the Lord, that if he would deliver the Ammonites into his hands, whoever should come out of the door of his house, in Mizpeh, to meet him on his return, he would offer up to the Lord as a burnt-offering. His daughter met him, and it is written "he did with her according to his vow." There has been much debate whether he sacrificed her life, or dedicated her in perpetual virginity to the Lord. The case remains doubtful; but the belief preponderates with scholars that a ransom, not unusual under Jewish law in cases involving human life, was given in substitute for her life, which thereafter was regarded as devoted to God. The whole drift of the Mosaic law is well known to have been utterly against human sacrifices in the worship of Jehovah. He conquered the Ephraimites, and, controlling the fords of the Jordan, slew all who, on being required as they passed over to pronounce the word "shibboleth" (an ear of corn), gave the word "sibboleth" without the aspirate, thereby revealing themselves as Ephraimites. He was buried in a city of his native Gilead.

JEQUIRITY. See page 886.

JEQUITINHON'HA, a Brazilian river, which falls into the Atlantic near Belmonte, in Bahia, lat. 15° 50′ s., long. 39° west. Its length is about 750 m., and the area of its basin is 19,800 sq. miles. Its course is over a rough and precipitous bed, in several places forming magnificent cataracts, falling from heights varying between 250 and 300 ft., and it is navigable only by canoes between Minas Geraes and Bahia. The main channel of the river is formed by the junction of the Pardo and the Poassú rivers. The principal tributary of the Jequitinhonha is the Arassuai.

JERASH'. See GERASA.

JER'BA. See GERBI.

JER'BOA, *Dipus*, a genus of rodent quadrupeds, of the family *muridæ*, remarkable for the great length of the hind legs, and kangaroo-like power of jumping. The fore-legs are very small, hence the ancient Greek name, *dipous* (two-footed). The tail is long, cylindrical, covered with short hair, and tufted at the end. The jerboas are inhabitants of sandy deserts and wide grassy plains in Asia and the e. of Europe, Africa, and Australia. They are burrowing animals, nocturnal, very destructive to grain and other crops, laying up hoards for their winter use. They take prodigious leaps when alarmed; the fore feet are then not used at all, but by means of the hind feet and the tail they leap, although they are small animals, several yards. Their flesh is said to resemble that of the rabbit.—Closely allied to the jerboas are the *gerbils* (*gerbillus*), small quadrupeds, also distinguished by great length of hind legs and power of leaping, inhabitants of the warm and sandy portions of the old world.

JEREMI'AH (Heb. *Yirmiyahu*), a Hebrew prophet, was the son of Hilkiah, a priest of Anathoth, a place about 3 m. n. of Jerusalem. He prophesied under the reigns of Josiah, Jehoahaz, Jehoiakim, Jehoiachin, and Zedekiah (630–590 B.C.), and even later. His character and fortunes are clearly discernible in his writings. To him, a man of an

emphatically spiritual, truthful, self-sacrificing nature, it was given to predict in the midst of the both politically and religiously rotten state of the commonwealth, under the successive weak kings, its speedy destruction. Fearless yet hopeless, he delivers his mournful messages from year to year, and battles with despairing heroism against the inevitable. His life thus became one long martyrdom. We read of his enduring "reproach and derision daily" (xx. 8); his townsmen of Anathoth threatened to slay him if he did not stop prophesying woe (xi. 21); his own brethren, the house of his father, "dealt treacherously" with him (xxii. 6); so that his spirit at times failed him. There were two political parties in Judah at this time—in favor of a Chaldean and an Egyptian alliance respectively. Like the earlier patriotic prophets, Jeremiah repudiated both at first. The course of events, however, had necessitated a compromise, and the religious party—gradually decreasing in numbers and influence—had declared against Egypt, and in favor of Chaldea. King Josiah, who belonged to it, perished at Megiddo, in the valley of Esdraelon, in an attempt to stop the progress of Pharaoh-Necho (609 B.C.). After this things grew worse. The Egyptian party became predominant, and Jeremiah was now forced to take a side, and became a partisan as well as a prophet. He speaks of the king of Babylon as God's servant, and prophesies the destruction of the temple. A cry arose from the priesthood and the prophets for his life, and he escaped with difficulty (xxvi.). At last came the judgment. The best portion of the people were carried into captivity; and Jeremiah urged his countrymen to wait for the period of deliverance with religious fortitude and patience. A sudden irruption of the Egyptians drove the Chaldeans out of Judah, and Jeremiah was again exposed to persecution, thrown into a pit to die, and only rescued by the kindness of an Egyptian eunuch. The capture of Jerusalem by Nebuchadnezzar rendered the prophet's position more tolerable. Jeremiah had always preached submission to the Chaldeans. He was even patronized by the conqueror, and offered a home at Babylon, but he preferred to reside among the wretched remnant of the people left in Judah (xl.). Intestine strifes, however, soon drove some to take refuge in Egypt. Jeremiah was carried off along with the exiles, and here he is believed to have died, and his grave was long shown at Cairo. According to others, however, he came back to Judea. The writings of this prophet, dictated by him to Baruch, have been arranged with little regard to order, and the text is in a state of great confusion, notwithstanding that Jeremiah himself undertook two distinct redactions. They exhibit great tenderness and elegiac beauty of sentiment, but lack the sublime grandeur of Isaiah. He often borrows largely from his poetic predecessors. Several of the Psalms have been attributed to him, especially by modern critics. Hitzig numbers 34, which he believes to be the composition of Jeremiah. There is no reason to doubt that the Lamentations are properly ascribed to him, while the apocryphal work of his, mentioned by Jerome (Matt. xxvii.), deserves little notice. Among commentators may be mentioned Origen, Jerome, Theodoret, Oecolampadius, Sanctius, Venema, Michaelis, Umbreit, Henderson, Dahler, Knobel, Ewald, Hengstenberg, and Bunsen.

JEREMIAH, PROPHECY OF (*ante*), though not arranged in the order in which it was delivered may be divided, with some degree of correctness, by the aid of time marks which some of the chapters supply. The introduction contains the title of the book; the period during which its prophecies were spoken; Jeremiah's call to the prophetical office; emblems indicating to him that the judgments to be denounced, coming from the north, would be executed quickly and would be severe; and the exhortation to him to be diligent, faithful, and confident in the protection of God. Part I., comprising prophecies delivered during 18 years of Josiah's reign. The Lord, recounting the loving relations between himself and Israel, reproaches them for having forsaken him and exhorts them to return; Judah is charged with being even more guilty than Israel, Israel, exhorted to repent, is promised a time of deliverance; Judah and Jerusalem are urged to avert, by immediate repentance, the Babylonian invasion which, otherwise, would speedily come, inflicting misery on the people and desolation on the land; are warned not to believe the flattering words of false prophets, or trust to the sacredness of the temple as a defense against the divine judgments; are reminded of the transgressions and idolatries of which they were guilty, notwithstanding the divine instructions and blessings; the desolation of Jerusalem and the other cities of Judah, declared; the confidence of the Jews, as possessors of the law which they transgressed, pronounced vain; Jeremiah overwhelmed with sorrow in view of the calamities which he is compelled to foretell; the vain splendor of idols contrasted with the majesty of God; the terms of the covenant with the people, again declared; condemnation for violating them; destruction pronounced on those who threaten the prophet; Jeremiah, acknowledging the righteousness of the Lord, pleads with him concerning the apparent prosperity of the wicked, and is assured that it will soon come to an end, and that lasting peace can be obtained only by righteous obedience. Part II. Prophecies during the 11 years of Jehoiakim's reign. The destruction of the pride and grandeur of the land foretold under the emblems of a decayed girdle and of bursting wine bottles; the king and queen called on to humble themselves because of the approaching captivity of themselves and their land; a grievous famine predicted, leading to the prophet's confession of the people's sin and his entreaty for their forgiveness, and followed by the assurance that they had

become incorrigible and that prayer for them could not avail; the certainty of their doom illustrated by the prohibition of marriage and of feasting; their ultimate restoration to their land promised; confidence in man condemned and trust in God commended; blessings promised to those who hallowed the Sabbath and judgments pronounced on those who profaned it; a potter working in clay used as an emblem of God's sovereignty in averting threatened judgments when nations repent, and withholding promised blessings when they transgress; the Jews, exhorted to avert judgments from themselves by returning to God, refuse, and conspire against Jeremiah's life; his prayer for the interposition of God against them; the breaking of a potter's vessel, in the sight of the princes and priests, as a symbol of the destruction of Jerusalem; the condemnation of Pashur, who had charge of the temple, for his arrest of Jeremiah, and the emblematic name given him signifying "Terror is around," and prefiguring the captivity of himself, his friends, and the nation; Jeremiah's appeal to God for help under the burdens of his office, followed by lamentation over the day of his birth; the doom of Jehoiakim and his family pronounced; a brighter day promised in the distant future under the reign of the righteous king of the family of David, whose name shall be "Jehovah our righteousness"; judgments threatened against false prophets; Jeremiah arrested and declared worthy of death for having proclaimed the word of the Lord against Jerusalem; the obedience of the Rechabites to their father contrasted with the disobedience of the people to God; the prophecies of Jeremiah against Jerusalem burned by the king and rewritten; Nebuchadnezzar's victories foretold over Egypt, Philistia, Tyre, Moab, Ammon, Edom, Syria, and Kedar. Part III. Prophecies during the 11 years of Zedekiah's reign. Conquest of Persia by the Chaldeans foretold, with promise of its final deliverance; the deliverance of the first captives in Babylon and the destruction of Zedekiah and his kingdom foretold under the emblem of good and bad figs; warning to the Jews that their captivity would not be brief, with the assurance of deliverance at the end of 70 years; their return, conversion to their Messiah, and subsequent happiness, promised; the destruction of Babylon foretold; Jeremiah cast into a miry dungeon, and released by the king's command; Zedekiah required to choose between safety for himself and the city if he submitted to the king of Babylon, and destruction to both if he continued to resist; his continued resistance resulting in his blindness and captivity; Jeremiah released by the conqueror's command, with the offer of kind treatment in Babylon or liberty to dwell anywhere else; his choice to continue with the remnant of the people, promising them safety and blessing if they remained at home, but pronouncing their destruction if they went down to Egypt; their persistence in going down, taking him with them.

After this, in the absence of certain knowledge concerning this prophet, there are conflicting traditions that he was stoned to death by his countrymen in Egypt; that he died there, broken down with sorrow; that he returned to Judea; and that he went to Babylon and died there.

JEREZ DE LA FRONTERA, or Xerez, a Spanish t., situated upon the Guadalete river, in the provine of Andalusia; pop. 38,898. It is noted for the production of the celebrated Xeres wine, which is made from grapes from the surrounding vineyards. Divided into the old and new town, the walls of the ancient Jerez are still standing where Roderick the Visigoth fought a battle with the Moors in 711, and was defeated. The Moors continued in possession of the town until the middle of the 13th c., when it was recaptured by Alonzo the wise. The new town is well laid out, contains three handsome squares, and its streets are well lighted and kept in good order. The cathedral, dating back to 1695, and a few of the churches are interesting buildings. There are 5 convents, a number of monasteries, 5 hospitals, and free schools. The old Moorish castle is a splendid specimen of architecture.

JERFALCON. See Gyrfalcon, *ante*.

JER'ICHO, once one of the most flourishing cities of Palestine, two hours' journey westward from the Jordan, and six hours n.e. from Jerusalem. Westward from Jericho lies a waste tract of limestone mountains, rising in stages; but the immediate vicinity is well watered and fruitful, yielding dates, raisins, balsam, and honey, yet a favorite abode also, in early times, of poisonous snakes. The capture of Jericho by the Israelites on their first entry into Canaan, its destruction, and the rebuilding of it by Hiel the Bethelite in the reign of Ahab, about 918 B.C., are found recorded in Josh. vi.; 1 Kings xvi. 34. It appears to have been afterwards the seat of a school of prophets (2 Kings ii. 4, etc). Herod the great resided in Jericho, and beautified it. It was destroyed in the reign of Vespasian, and again rebuilt under Hadrian. In the time of the crusades, it was repeatedly captured, and at last completely destroyed. At the present day, its place is occupied by a miserable village called Richa, or Ericha, with scarcely 200 inhabitants.

JERICHO, ROSE OF. See Rose of Jericho, *ante*.

JERKED-BEEF, beef preserved by drying in the sun. It is properly called *charqui*, and, like its name, is of Chilian origin, although now made in large quantities in Montevideo, Buenos Ayres, and other places in South America, where the vast droves of cattle on the prairies are available for the purpose. The beasts are slaughtered when in good condition, and the fleshy parts are dexterously pared off in such a manner as to resemble a succession of skins being taken from the same animal. These sheets of flesh, which

are rarely more than an inch in thickness, being exposed to the sun, dry before decomposition commences, and in that state can be kept almost any length of time. Sometimes the charqui is dipped into brine, or rubbed with salt, before being dried. It is largely imported to Cuba, where it is called *tasajo*, for feeding the slaves. The manufacture of charqui or jerked-beef has been introduced into Australia, and in 1862 shipments of it were made from Victoria to the mother-country, with but inconsiderable success—though it contains all the nutritive matter of animal food, and could be sold for about twopence per pound. But other forms of preserved meat (see PRESERVES) have nearly driven jerked-beef from the English market.

JER'KIN-HEAD, a form of roofing which is half-gable, half-hip. The gable generally goes as high as the ties of the couples, above which the roof is hipped off.

JEROBOAM I., d. 935 B.C.; son of Nebat, of the tribe of Ephraim, and the founder of the kingdom of Israel. During the reign of Solomon, he had charge of the public works of Jerusalem, but engaged in a conspiracy against the king, and was forced to flee to avoid punishment. This action on his part was occasioned by his having received the assurance of the prophet Ahijah that, on the forthcoming revolt of the ten tribes, he should be appointed their ruler. Having placed himself under the protection of Shishak, king of Egypt, he returned to Jerusalem after the death of Solomon, when the prophecy of Ahijah was fulfilled by his being elected by the ten revolting tribes to reign over them as king of Israel. Judah and Benjamin remaining loyal to Rehoboam, Jeroboam fortified Shechem, where he set up his altars, while he sought to prevent the tribes reuniting. He fought Judah with success, but was defeated by Abijah. He is spoken of in Scripture as having "made Israel to sin."

JEROBOAM II., was the son of Jehoash, or Joash, and reigned after his father's death, 823–782 B.C. He defeated the Syrians, and wrested Damascus and Hamath from them. He was a worshiper of Baal and promoted idolatry, and his reign, though prosperous, was immoral and cruel.

JÉRÔME, KING OF WESTPHALIA. See BONAPARTE, JÉRÔME, *ante.*

JEROME, SAINT (EUSEBIUS HIERONYMUS SOPHRONIUS), was b. at Stridon, a town whose site is now unknown, on the confines of Dalmatia and Pannonia, at some period between 331 and 345—probably nearer to the latter year. His parents were both Christians. His early education was superintended by his father, after which he studied Greek and Latin rhetoric and philosophy under Ælius Donatus at Rome, where he was also admitted to the rite of baptism. After a residence in Gaul he seems to have revisited Rome; but in the year 370 he had settled in Aquileia with his friend Rufinus. For some unknown reason, he suddenly went hence to the east; and after a dangerous illness at Antioch, which appears to have still further added to the religious fervor of his disposition, he retired, in 374, to the desert of Chalcis, where he spent four years in penitential exercises and in study, especially of the Hebrew language. In 379 he was ordained a priest at Antioch, after which he spent three years in Constantinople in close intimacy with Gregory of Nazianzus; and in 382 he came on a mission connected with the Meletian schism at Antioch (see MELETIUS) to Rome, where he resided, until 385, as secretary of the pope Damasus, and where, although already engaged in his great work of the revision of the Latin version of the Bible, he attained to great popularity and influence by his sanctity, learning, and eloquence. Many pious persons placed themselves under his spiritual direction, the most remarkable of whom were the lady Paula, and her daughter Eustochium. These ladies followed him to the Holy Land, whither he returned in 384. He permanently fixed his residence at Bethlehem in 386, the lady Paula having founded four convents, three for nuns, and one for monks, the latter of which was governed by Jerome himself. It was in this retreat that Jerome pursued or completed the great literary labors of his life; and it was from these solitudes, all peaceful as they might seem, that he sent forth the fiery and vehement invectives which marked not only his controversy with the heretics Jovinian, Vigilantius, and the Pelagians (q.v.), but even with his ancient ally, Rufinus (q.v.), and, although in a minor degree, with St. Augustine. His conflict with the Pelagians rendering even his life insecure at Bethlehem, he was compelled to go into concealment for above two years; and, soon after his return to Bethlehem in 418, he was seized with a lingering illness, which terminated in his death, Sept. 30, 420. His original works, consisting of letters, treatises, polemical and ascetical, commentaries on Holy Scripture, and his version and revision of former versions of the Bible, were first published by Erasmus, 9 vols. folio (Basel, 1516), and have been several times reprinted. The best editions are that of the Benedictines, 5 vols. folio (Paris, 1693–1706), and, still more, that of Vallarsi, 11 vols. (Verona, 1734–42). St. Jerome is universally regarded as the most learned and eloquent of the Latin fathers. His commentaries on the Bible are especially valuable for the learning which they display; but his opinions are often exaggerated and fanciful, and through his controversial writings there runs a strain of violent invective, which contrasts unfavorably with the tone of his contemporary St. Augustine. See VULGATE.

JEROME OF PRAGUE, the companion of John Huss, whom he surpassed in learning and eloquence, though he was inferior in judgment and moderation, was born at Prague in the latter half of the 14th century. After attending the university of his native town,

he continued his studies at Paris, Cologne, Oxford, and Heidelberg, and in 1399 took out his degree as master of arts and bachelor of theology. His reputation for learning was so great, that his advice was taken by Ladislas II., king of Poland, with respect to the founding of the university of Cracow in 1410; and Sigismund, king of Hungary, invited him to preach before him at Buda. He entered with his whole soul into the contest carried on by his friend Huss against the abuses of the hierarchy and the profligacy of the clergy. His zeal, however, carried him too far; he publicly trampled the relics under his feet, committed to prison the monks who did not share his opinions, and even ordered one of them to be thrown into the Moldau. When Huss was arrested at Constance Jerome hastened to defend him; but receiving no satisfactory answer to a letter in which he had demanded a safe-conduct from the council, he set out on his return to Prague, when he was arrested at Hirschau, in April, 1415, by the orders of the duke of Sulzbach, and conveyed in chains to Constance. Here he was cast into a dungeon, and placed on trial. After some months' imprisonment he recanted his opinions, but subsequently abjured his recantation with horror, and went to the stake with great firmness. He was burned alive, May 30, 1416. Jerome's life has been written by Heller (Tübingen, 1835) and by Becker (Nördlingen, 1858).

JERROLD, Douglas, dramatist, journalist, and miscellaneous writer, was b. in London on Jan. 3, 1803. His early efforts in literature were directed to the theater, and some of his pieces—*Black-eyed Susan* (1829), for instance—still hold possession of the stage. At a later period, he produced several five-act comedies, the best known of which are *Time Works Wonders*, and *The Bubbles of a Day*. Jerrold's reputation stands more securely on his novels, sketches, and essays than on his dramatic works. His *Men of Character* was originally published in *Blackwood*. He joined the staff of *Punch* (1841), and contributed to that periodical *A Story of a Feather; Punch's Letters to his Son;* and the world-famous *Caudle Lectures*. Later appeared *The Chronicles of Clovernook*, the kindliest and most delightful of all his books, and *St. Giles and St. James*, his most elaborate novel. For several years before his death, he edited *Lloyd's Weekly Newspaper*. He died from disease of the heart, at Kilburn priory, at the age of 55.

Jerrold was a brilliant rather than a great man of letters. His plays are sparkling, but they want body and substance, and uninteresting matter had never perhaps so epigrammatic a setting as in his novels and tales. His reputation as a social wit stands higher than his reputation as a writer. He was greater in society than in his closet. Like a flint, every stroke brought fire from him. See *Life and Remains of Douglas Jerrold* and *Douglas Jerrold's Wit and Humor*, both by his son, William Blanchard Jerrold (Lond. 1858).

JERROLD, William Blanchard, b. London, 1826; studied art, and effected something in illustration, but had not the taste for it, and gave it up for literature. He wrote sketches for the magazines and weekly papers in London, and in 1847 published his first story, *The Disgrace to the Family*. He contributed leading articles to the *Daily News*, *Morning Post*, and *Lloyd's Weekly Newspaper;* wrote farces and comedies; and in 1857 became editor of *Lloyd's Weekly Newspaper*. In 1858 he published his *Life and Remains of Douglas Jerrold*, and in 1860 *The French under Arms*, and *The Chronicles of a Crutch;* and during the following years wrote novels, sketches of travels, studies of social life—particularly among the poor of large cities—political articles, and plays. His most important works are *Life of Napoleon III.*, of which the first volume was issued in 1874, and *Life of George Cruikshank* (1882). Mr. Jerrold was married in 1849 to the only daughter of his godfather, Laman Blanchard. He d. 1884.

JER'SEY—THE CHANNEL ISLANDS. Jersey is the chief of the group called the Channel islands (q.v.). The other inhabited islands of this group are Guernsey, Alderney, Sark, Herm, and Jethou. The coast is very dangerous, but light-houses are placed on most of the island headlands, and on the dangerous rocks called the Casquets, w. of Alderney. The Chaussey islands belong to France. The following table exhibits the area and population of the principal islands:

Name of Island.	Acreage.	Acreage Cultivated.	Population.	
			1861.	1881.
Jersey	29,000	20,000	56,078	52,455
Guernsey	14,000	9,000	29,780	32,659
Alderney	2,000	1,000	4,933	2,039
Sark	1,200	400	600	578
Other islands	.....	.....	230	....

Physical Geography—Description.—Jersey, which lies 17 m. s.w. of Guernsey, and 16 m. from the coast of France, is of an oblong form, about 10 m. in length and 6 in width. The land is high on the n. coast, and slopes to the s. and east. It is intersected by several small streams. The coast is indented by large open bays on the w., s., and e.; but on the n. by small rocky inlets. The interior is mostly table-land, well wooded, espe-

cially in the valleys along the winding streams. Jersey is divided into 12 parishes. The churches have little architectural pretension, but are generally picturesquely situated. The principal town is St. Helier (q.v.). The small, neat town of St. Aubin lies at the western extremity of the bay of that name. It possesses a diminutive harbor and castle, a good grammar school, and extensive vineries. Mont Orgueil castle is a grand and imposing mediæval fortress, looking over Gorey harbor. Some parts of it are said to be of the time of Julius Cæsar. It was the prison of Prynne and the parliamentarians, and has been used as a barrack. A good view of the island may be obtained from *hougue bie*, or prince's tower, a building raised on a mound of legendary interest.

ALDERNEY and GUERNSEY are described elsewhere (see those heads).

SARK (*Sercq, Gers*). Great and Little Sark are one island, connected by a natural causeway called the *Coupée*. They are lofty table-lands, with precipitous sides. The total length of the islands and rocks is about 5 m.; the greatest width, including Brechou and the Burons, about 3 miles. Sark is 8 m. from Guernsey. The principal objects of interest are the pierced rocks, caverns, and fissures. The caves are very rich in zoophytes. The seigneur is the rev. W. Collings, who resides on the island. There is one parish church, and a lodging-house for visitors, etc. The coast is very difficult of access, the only entrance to the interior being through a *creux* or tunnel cut in the rock.

Geology.—Most of the islands are composed of primary or granitic rocks. Alderney is a mass of syenite, with hornblende, porphyry, and occasional sandstone. The structure of Guernsey is hard syenite to the n., and gneiss to the south. The geology of Jersey is more varied, presenting a mixture of metamorphic rocks, conglomerates, and sandstones, with syenites and quartzites. Shale and blown sand are also prevalent. Sark is composed of very hard syenite, with veins of greenstone and feldspar. Granite is quarried from all the islands, especially from Guernsey, Herm, and Mt. Mado in Jersey, both for home use and exportation.

The scenery of the Channel islands is exquisitely varied and beautiful; probably in no other area of similar size could be found such a combination of savage rocks and pleasing landscapes.

The climate of the Channel islands is agreeable and suitable to invalids. The prevailing winds are from n. and n.w. The mean annual rain-fall is 35 in. in Guernsey, but the climate is not overmoist, the soil being porous and evaporation rapid. The mean annual temperature of Jersey is 50.8°; of Guernsey, 51.5°, or 2.5° warmer than Greenwich. The range of temperature is very moderate; but the climate of Guernsey is rather more equable than that of Jersey. Aug. is the hottest month; Feb. the coldest. Frost and snow are rare. The autumns are very beautiful; and a second summer, called the *Petit Eté de Saint Martin*, generally sets in about Oct. 10, and lasts till the middle of Dec. Flowering plants and shrubs are a fortnight earlier in the spring than in England.

The produce of the islands is principally agricultural; but horticulture and floriculture are successfully followed—the latter especially in Guernsey. The soil is generally light, deep, and fertile. The system of cultivation is very primitive. The principal manure is sea-weed, which is gathered in vast quantities from the shores, at certain seasons, under strict regulations. Its annual value to Guernsey alone is estimated at £30,000. A great quanity is burned for the manufacture of kelp and iodine.

The land is held in small parcels ranging from 5 to 20 English acres. The principal crops are hay, wheat, turnips, potatoes, mangel-wurzel, parsnips, and carrots. The yield of wheat is upwards of 30 bushels to the acre—the average of England being 24. The Channel islands possess an excellent breed of horned cattle, usually known as Alderneys, remarkable for their small size and symmetry, and for the quantity and quality of the milk which they yield. From 16 to 17 lbs. of butter are sometimes obtained weekly from the milk of 1 cow. Fruit is much cultivated in Jersey, especially the vine, and the peach, apricot, plum, apple; and the pear, particularly the Chaumontel, attains extraordinary size and flavor in Guernsey. About 30,000 bushels of table-fruit are annually exported from the islands to London and Paris. Shrubs and flowers flourish abundantly. The acclimatization society of London receives favorable accounts from the Guernsey branch of the successful cultivation of the Brazilian arum, for the manufacture of arrow-root, the produce being very large and profitable. Vegetables are plentiful; and the cow-cabbage grows to the height of 10 or 12 feet. The other products of the islands are principally fish, viz., turbot, red mullet, john dory, conger, *lauçons* or sand-eels, also lobsters and oysters, large quantities of which are exported. A considerable traffic is carried on in granite from all the islands; the blue granite from Guernsey for macadamizing, and the pink syenite from Mt. Mado, in Jersey, for paving purposes, are highly esteemed, and largely imported into London. The quantity of granite exported annually from the harbor of St. Sampson averages 125,000 tons.

History.—The early history of the Channel islands is mythical and legendary; but it is probable that the earliest inhabitants were Bretons. The islands were under Roman occupation during the 3d and 4th centuries, the name of Cæsarea or Jersey (Cæsar's isle) occurring in the Itinerary of the Antonines. Christianity was probably introduced by missionaries from Ireland about 460 A.D.—St. Helerius being the traditional apostle of Jersey, and St. Sampson of Guernsey. Probably, a mixed population of Saxons, Danes, Goths, and Gauls betook themselves to these islands during succeeding centuries, as the

Franks possessed the continent. The islands were taken possession of by Rolf or Rollo previous to his invasion of Normandy. After the Norman conquest the islands were alternately English, under William the conqueror; Norman, under Rufus; English, under Henry I.; and Norman again, under Stephen. With Henry II. the allegiance of the islands reverted to the king, as sovereign of Normandy as well as England; and after the loss of Normandy the islands still remained faithful to England.

John is said to have given a constitution to Guernsey. The islands still belonged ecclesiastically to Normandy, the bishop of Coutances being their diocesan. Edward III. and Henry V. materially weakened the papal bond; but it was not wholly severed till the reformation, after which (in 1658) they were attached to the see of Winchester. In Henry VI.'s time the French held Jersey for six years. During the civil war Jersey was loyal and Episcopal; Guernsey, republican and Presbyterian, and traces of this divergence are still to be found. In 1781, during the first American war, a French expedition, under the baron de Rullecourt, landed in Grouville bay, and marched into the market-place of St. Helier, but was repulsed with loss by the garrison and militia. During the French and American wars the islanders fitted out many privateers, and obtained rich prizes. Smuggling was finally suppressed in 1800. Since the peace the Channel islands have thriven and prospered by commerce and agriculture, and especially by becoming the resort of numerous families from England, who have been attracted thither by the beauty of the scenery or the salubrity of the climate.

Antiquities.—Formerly there were many cromlechs in the islands; the largest remaining are those near Mont Orgueil in Jersey, and at L'Ancresse bay in Guernsey. A few old chapels of Norman architecture remain. The oldest church in Jersey is that of St. Brelade, said to have been built in 1111.

Language.—The vernacular language of the islands is the old Norman-French. It retains its peculiarities of spelling and pronunciation in Guernsey more than in Jersey, where the French, and in Alderney, where the English element predominates in the dialect. French, however, is the language used in the law-courts of all the islands; but English suitors may address the court or examine witnesses in English. The church services are performed in French in the country parishes, but an English service takes place in most of the town churches.

Inhabitants.—The proportion of strangers in Jersey is very large, British being about 13,000, French 2,000; the native population about 41,000, nearly all of whom live in the country. The natives are generally frugal and independent. Society is much divided into cliques; the "sixties" and "forties" in Guernsey are a marked division.

Government and Laws.—Though belonging to the British crown, the islands have a certain independent *status* and action. The principal officer in each island is the *lieutenant-governor*, who is a general officer in the army, and supreme in all military matters; but he has also certain civil and municipal duties. In Jersey especially, his civil jurisdiction is very extensive. He continues in office five years.

The *bailiff* or judge is the first civil officer in each island. He is also appointed by the crown, generally for life. He presides at the royal court, and has a casting vote in civil and criminal cases. He originates all measures proposed to the states, and represents the crown in all civil matters. The jurats are twelve in number, elected in Jersey by suffrage of rate-payers for life. They sit in all the courts, and have a voice in all deliberations: in Guernsey they are elected by the elective states. The rectors of the different parishes have also a seat in all councils: in Guernsey, however, only eight out of ten have a vote. Besides these officers there are an attorney and a solicitor general in each island, and a high-sheriff, called in Jersey the *vicomte*, and in Guernsey the *prévôt*.

The other members of the "states" or assemblies are, in Jersey, the *constables* of the 12 parishes and the 14 *deputies* of the *vingteniers*, who are elected from the *vingtaines* of each parish. The *royal court* on each island consists of the bailiff and jurats. The "states," not convenable without the consent of the governor, pass *ordonnances*, which are in force for three years; laws intended to be permanent must be submitted to the sovereign. The lieutenant-governor has a *veto* on all questions deliberated.

In Guernsey the "deliberative states" consist nearly of the same body, but there are also the "elective states," a more popular assembly, amounting to 222 persons—the great majority being 200 *douzaniers*, elected by the rate-payers of the various parishes. The douzaniers (originally 12 from each parish) are the managers of all parish matters, and elected for life. The bailiff presides. The lieutenant-governor has no veto, and ordonnances passed take effect without the royal approbation. The proceedings of the states relate to the internal administration of the islands.

Alderney and Sark, though possessing courts of their own, and jurisdiction in petty offenses, are, with the smaller adjacent islands, under the bailiwick of Guernsey.

The laws of the islands are very peculiar, being mainly derived from the ancient customary law of Normandy. The laws relating to property are singular: arrest takes place in Jersey without proof or affidavit. Until recently the queen's writ had no power in the islands, and the act of *habeas corpus* has only lately been admitted. Encroachments on property are sometimes met by a curious appeal called *Ha! Ro! à l'aide, mon Prince!* repeated thrice. It is considered to be the remains of an old appeal to Rollo, duke of Normandy, and is still a valid form of injunction.

Ecclesiastical State.—There is a dean in each island. The livings are in the gift of the crown, and of small value. The principal educational establishments are Victoria college in Jersey, and Elizabeth college in Guernsey. In both a first-class education is given on very moderate terms, by an excellent staff of teachers, and they have various exhibitions at the universities of Oxford and Cambridge.

There is regular steam communication between England and the Channel islands, also between Jersey and the French ports of Granville and St. Malo; and in summer there is generally an excursion-boat once a week to Sark and Herm.

The islands are protected by numerous forts, especially about the harbor of refuge in Alderney.

Books of Reference.—The principal historical authorities are the rev. P. Falle's *History of Jersey;* Mr. Duncan's and Mr. F. B. Tupper's histories of Guernsey; and Mr. Dally for the agriculture of the islands. A more recent and a very comprehensive work is *The Channel Islands*, by D. T. Ansted, M.A., F.R.S., and R. C. Latham, M.A., M.D., F.R.S., etc. (Lond. 1862). See, also, Pegot-Ogier's *Histoire des Iles de la Manche.*

JERSEY, a co. in s.w. Illinois; bounded s. by the Mississippi and w. by the Illinois rivers; traversed by the Chicago and Alton railroad; 350 sq.m.; pop. 15,542. The surface comprises woodland and prairie, the soil being generally fertile; staple products are grain, cattle, and wool; and coal measures occur and are extensively mined. Co. seat, Jerseyville.

JERSEY CITY, a city in New Jersey, United States, on the w. bank of the Hudson river, opposite New York, of which it is, in fact, though in another state, an extension, and to which it is united by large and powerful steam ferry-boats, lighted with gas, which ply night and day. It is the entrepôt of the Cunard and other ocean steamers, and the terminus of six lines of railway, and of a canal for coal-transport. It has manufactories of locomotives, machinery, watches, glass, and crucibles; foundries, breweries, sugar-refineries, etc.; 5 newspapers; and about 60 churches, the finest of which once stood in Wall street, New York, but was removed and carefully built up, stone by stone, in this city. Pop. '60, 29,226; '70, 82,546.

JERSEY CITY (*ante*) stands upon a peninsula once known as Paulus Hook, and used for farming purposes for 150 years before the beginning of the present century. In 1802 it contained but 13 inhabitants, living in a single house. In 1804 the legislature of New Jersey granted a charter to the "associates of the Jersey company," who laid out the place into blocks and streets. Commercially considered, it was from the beginning a dependency of New York, though belonging to another state. In 1820 it had gained so much in population and business that it was incorporated as "the city of Jersey"—a name which is rather an attestation of the commercial aspirations than of the good taste of the corporators. In 1838 it was reincorporated under the name of "Jersey City." It is bounded on the n. by North Bergen, West Hoboken, and Hoboken; s. by Bayonne; w. by Newark bay, Hackensack river, and Penhorn creek; and e. by the Hudson river, which separates it from New York. Its length from n. to s. is about 5 m.; its width from e. to w. about 3 miles. It is for the most part regularly laid out, the streets being wide and crossing each other at right angles. It is the county seat of Hudson co., and its chief public buildings are the city hall, the county court-house and jail, and a commodious market. There are many handsome residences, numerous substantial business structures, excellent school buildings, and a number of fine churches. There are four small public squares, two of them provided with fountains and adorned with trees, another divided by intersecting streets, and the fourth used for military parades. The increase of population from 29,227 in 1860 to 82,546 in 1870 is accounted for in part by the annexation of the cities of Hudson and Bergen, each of which contained more than 7,000 inhabitants. In 1872 the township of Greenville was also annexed, with a population of 2,789. In 1870 the number of families in the city was 16,687; of dwellings, 9,867. Of the total population, 31,835 were of foreign birth, 17,665 being natives of Ireland, 7,151 of Germany, 4,008 of England, and 1176 of Scotland. The Morris canal, which connects the waters of the Delaware with those of the Hudson, has its terminus here. Twelve lines of railway also approach New York here; among them, the Erie, the Pennsylvania, the Central of New Jersey, the Northern New Jersey, the New Jersey Midland, and the New York and Newark. Commodious and well-appointed steam ferry-boats ply constantly, day and night, between Jersey City and New York, and the work of constructing a tunnel under the Hudson between the two cities has already been begun. The projectors of this enterprise are confident of its complete success. Horse-cars ply between the different sections of Jersey City, and connect it also with Hoboken, West Hoboken, and Bayonne. The city is not a port of entry but a part of the New York customs district, so that its commerce is not separately returned. The Cunard line of English ocean steamers has its place of landing for both passengers and freight at this point, and the immense quantities of coal and iron brought hither by the canal and the railroads create a large business. The manufacturing interests of the city are extensive and important. The principal establishments are the United States watch manufactory, extensive glass works, crucible works, steel works, zinc works, boiler works, machine-shops, foundries, railroad repair and supply shops, locomotive

works, sugar refineries, breweries, planing-mills, manufactories of chains and spikes, medals, car-springs, pottery, soap and candles, saleratus, castor and linseed oils, copper articles, jewelry, fireworks, drugs and chemicals, lead pencils, etc. The business of slaughtering animals for the New York market is carried on in the northern part of the city, near the river front, where an abattoir and stock-yards have been provided for the purpose. Jersey City contains three national banks, with a capital of $900,000, 2 state and 8 savings banks, 4 insurance companies, and a trust company with $200,000 capital. The streets are well paved and sewered and lighted with gas, and the city is supplied with water from the Passaic river. The arrangements for extinguishing fires are of the most improved kinds. The assessed value of property in 1873 was $62,292,138. The bonded debt in 1880 amounted to over $15,000,000. The public schools are well managed and of a high character. The number of mechanical and manufacturing establishments in 1880 was 584; capital invested, $11,899,915; wages paid, $4,622,655; hands employed, 11,138, value of products, $60,473,905. The refining of sugar and molasses and slaughtering and meat packing give products with annual value of over $41,000,000. The principal charitable institutions are the city hospital, the home for aged women, and the children's home. There are 2 daily and 6 weekly newspapers—2 of the latter German. The number of churches is 60, and the principal denominations are Baptists, Congregationalists, Episcopalians, Methodists, Presbyterians, Lutherans, Roman Catholics, and Universalists. Pop. '80, 120,728.

JERSEYVILLE, a city, the co. seat of Jersey co., Illinois, on a branch of the Chicago and Alton railroad, 50 m. from St. Louis; pop. 2,894. It is built on an elevation, and laid out in broad, shaded streets, with handsome buildings, including 8 churches, a public school, and numerous manufacturing establishments of importance.

JERU'SALEM (Heb. *Yerushalem*, Gr. *Hierousalem*, Lat. *Hierosolyma;* called also in Arabic, *El-Khuds* or *El-Kods*, "the Holy"), the Jewish capital of Palestine. Its origin and early history are very obscure. Josephus (*Antiq.* i.x. 2) identifies it with the "Salem" of which Melchizedek (Gen. xiv. 18) is called king; but St. Jerome doubts the correctness of this view. Critics are better agreed as to the identity of Jerusalem with Jebusi, the city of the Jebusites (Josh. xviii. 28), and we know that the Jebusites retained possession of the strong positions of the hill of Zion for a considerable time after the conquest of Canaan, and even after the storming of Jerusalem (Jud. i. 8), while the tribes of Judah and Benjamin occupied the lower city. They were finally dispossessed by David (2 Kings v. 7). The name Jerusalem is first mentioned in Joshua x. 1. It lies upon the original border of Judah and Benjamin, the line of which runs through the valley of Hinnom, so that Zion and the northern city lay within the territory of Benjamin. Its historical importance dates from the time of David, who there fixed his residence, calling it by the name of the "City of David," transporting to it the ark of the covenant, and building in it an altar to the Lord, on the place of the apparition of the angel by which the plague was stayed (2 Kings xxiv. 25). The building of the temple under Solomon was the consummation of the dignity and holiness of Jerusalem, which was further enlarged, strengthened, and b autified by this king and by his successors. It suffered a diminution of political importance through the revolt and secession of the ten tribes, from which date its history is identified with that of the kingdom of Judah. It was pillaged (973 B.C.) by Sesac (Shishak) king of Egypt (2 Chron. xii. 9), by Joash king of Israel (4 Kings xiv. 13, 14); and finally (588 B.C.), it was taken, after a siege of three years, by Nabuchodonosor, who razed its walls, and destroyed the temple and palaces by fire (4 Kings xxv.). Having been rebuilt after the captivity (536 B.C.), it was again taken and pillaged under Ptolemy Lagos (320 B.C.), and under Antiochus Epiphanes (161 B.C.), after the well-known and mysterious repulse of Heliodorus (176 B.C.); and Pompey (63 B.C.) took the city on the anniversary of its capture by Nabuchodonosor, put 12,000 of the inhabitants to the sword, and razed the walls to the ground, sparing, at the same time, the treasures of the sanctuary. However, a few years later, they were pillaged (51 B.C.) by Crassus; and from these beginnings dates the continued series of Roman aggressions, which terminated in the complete destruction of the city and dispersion of the Jewish race, under Vespasian and Titus (70 A.D.). From the description of the contemporary historian, Josephus, we learn that at this period, Jerusalem, which occupied the four hills, Zion, Acra, Moriah, and Bezetha (separated from each other by deep valleys or gorges), consisted of three distinct regions—the upper city, with the citadal of Zion; the lower city, which lay to the n., on the hills of Acra and Moriah; and the new city, still further to the northward. The temple stood on the hill of Moriah, and John Hyrcanus built, on the north-western angle of this hill, a fortress called Baris, which was strengthened and beautified by Herod, and called "Antonia," in honor of Mark Antony. Herod's own palace stood at the northern extremity of the upper city, and on the eastern angle was an open place called Xystus, surrounded by galleries, and communicating by a bridge with the temple. The environs of the city were adorned with gardens, parks, ponds, and tombs. In the progress of ages, ancient Jerusalem was surrounded by three walls, the direction of which, in some portions of their course, is difficult to be determined, although it is upon this that the controversy as to the authentic site of the Holy Sepulcher (q.v.) mainly turns. The first and most ancient wall surrounded the upper city on the hill of Zion, and joined on its northern side the prodromum of the temple. The second wall, or the wall of

Ezechias, inclosed the hill Acra, around which stood the lower city. It was connected at the south-western angle with the first wall, from which it ran in a semi-circle to the n. and n.e., surrounding the upper city till it joined the fortress Antonia, described above. The third wall, built by Herod Agrippa, which inclosed the hill Bezetha and the so-called new city, appears to have started in the north-western angle of the first wall, probably at the tower called "Hippicus," and to have taken a northerly and north-easterly direction around the new city till it met the north-eastern angle of the temple wall. It thus, for a part of its course, was external to the second wall. The site of the church of the Holy Sepulcher and the hill of Cavalry are thus supposed by the defenders of their authenticity to have been without the wall of Jerusalem as it stood in the days of our Lord—that is, the second wall, although they were taken in by the subsequent extension of the city a short time afterwards, when the third wall was built some distance to the w. of the second, by Herod at Agrippa. The investigation of the exact direction of the second wall has long been an object of desire with biblical antiquaries, and it is probable that the excavations now projected or in progress will remove all uncertainty.

The city destroyed by Titus was rebuilt by Hadrian, but only as a heathen and Roman city, under the name Ælia Capitolina, with a temple of Jupiter; not as the capital of the Jewish race, who were forbidden, under pain of death, to visit it. Constantine, under the inspiration of his mother, Helena, took measures to consecrate and perpetuate its Christian memories by ascertaining the sites of the various events in the Passion of our Lord, and erecting on them churches and other suitable memorials of those scenes of the redemption of the world, which thenceforward became an object of pious veneration to pilgrims from every part of the church. On the contrary, Julian the apostate, with the design, according to the contemporary Christian account, of falsifying the prediction of our Lord, that "not one stone should be left upon another," encouraged and assisted the Jews to return and rebuild their ancient capital, an enterprise which, as the same writers—supported, in most respects, by the pagan historian Ammianus Marcellinus (xxiii. 1)—was frustrated by an earthquake or eruption, which the Christians ascribe to divine interposition.

Jerusalem again fell under foreign domination in 614, when it was stormed by the Persian king, Chosroes II. It was restored to the emperor Heraclius in 628; but in 637 it fell into the hands of the caliph Omar, and in 1077 passed under the Turkman domination. During this long period the practice of pilgrimages to Jerusalem was never entirely interrupted. In consideration of a tribute paid by each Christian visitor, a contemptuous permission was accorded for the purpose; but the cruelties practiced on the pilgrims by the Turks being reported in the west, and especially by the fiery enthusiast, Peter the Hermit, aroused the piety and chivalry of Europe, and led to that extraordinary succession of holy wars which, for a time, restored the tomb of our Lord and the city to Christian hands. On July 15, 1099, Jerusalem was taken by assault, and was declared the capital of a Christian kingdom. Through a rapid succession of undistinguished names, with the exception of the first, the celebrated Godfrey of Bouillon, the new sovereignty was precariously maintained until 1187, when it fell once more before the arms of the great Saladin, since which time—if we except the brief and empty pageant in which Frederick II., emperor of Germany, having assumed the title by a collusive treaty with the sultan, entered into Jerusalem in March, 1229—the city can hardly be said to have known other than Moslem rulers. It was retaken by the sultan of Damascus in 1239; and although it was given up, in 1241, to the Knights Hospitalers, they were driven out in the year 1244 by the Chorasmian Turks, by whom the ascendency of the crescent was finally established. It was captured from the Saracens by the Mamelukes in 1382, but recovered in 1517 by the sultan Selim, whose son, the celebrated Soliman, built the wall which at present incloses the city. Jerusalem is now the seat of a pasha, with the ordinary powers of a Turkish viceroy.

It remains to describe the present condition of the city. It is situated in 31° 46′ 43″ n. lat., 35° 13′ e. long., on an elevation of 2,000 ft. above the level of the Mediterranean, from the nearest point of which it is distant 29 m. east. In its present shape it is an irregular square, and is still surrounded by the embattled wall, about $2\frac{1}{2}$ m. in circumference, erected by the sultan Soliman. The modern inclosure, however, is far from coinciding with that of the Jewish period. In addition to the changes produced by the rebuilding of the city under Hadrian, by which the greater part of the region anciently called the new city was excluded, the stream of population in the Christian period having flowed towards the holy places, the modern city has extended considerably towards the west. The four hills on which the ancient city stood are inclosed within the modern precincts; but the portion of the old city which lay n. of Bezetha is now excluded, and the valleys between the hills having been filled up by accumulation of ruins, but little inequality of surface is now observable. The streets are narrow, unpaved, and irregular, and the houses gloomy and unsymmetrical; although, owing to its striking position, especially when viewed from the e., and to the number of minarets and domes which rise above the level of the flat-roofed houses, the general appearance of the city, seen from without, is picturesque and pleasing. There are seven gates, of which the principal are the Jaffa gate, the Damascus gate, the Stephen's gate, and the Zion gate. If lines be drawn between these four gates, the city will be divided into four

parts, which almost coincide with the four quarters into which the population—Christian, Armenian, Jewish, and Moslem—is divided; the Christians occupying the n.w., the Armenians the s.w., the Jewish the s.c., and the Mohammedans the n.e. portions of the space within the wall. Of the population—which is about 18,000—5,000 are Mohammedans; 8,000 or 9,000 are Jews, and the rest are Christians of the various rites. To all alike the city is the seat of many sacred associations. The Jews have seven small and mean synagogues. The Mohammedans, since the days of the first occupation, have held possession of the site of the temple of Solomon, on which the so-called mosque of Omar now stands; and the pasha's seraiyah, or official residence, occupies the site of the tower Antonia. The church of the Holy Sepulcher (see HOLY PLACES), with its inclosure, which is occupied by all the Christian communities in common, has been already described. The Latins possess, for their own worship, the church of St. Savior; it is attached to the Franciscan convent, in which Europeans of all denominations receive ready hospitality. In like manner, the Greeks, Armenians, Syrians, Copts, and Abyssinians have convents or hospitals appropriated to their several communions. That of the Armenians, on Mt. Zion, is said to be one of the richest in the east; and the same communion possess another convent on the reputed site of the house of Caiaphas. The street leading from the eastern or Stephen's gate to the Holy Sepulcher is called the *Via Dolorosa*, and is believed to follow the route of our Lord's sorrowful procession from the hall of judgment to Mt. Calvary. In other parts of the city or its immediate environs are shown the reputed sites of the Mount of Olives, the tomb of the Virgin, the pool of Bethesda, the potter's field, and the sites of almost all the events of the Passion of our Lord or of scenes connected therewith. The authenticity of these sites has been the subject of considerable controversy in later times. (See HOLY PLACES). Beyond its religious associations the modern city possesses few advantages. It is entirely without commerce; and its only branches of industry are the manufactures of soap and of *Jerusalem ware*, viz., chaplets, crucifixes, beads, crosses, etc., made of mother-of-pearl or wood, and sold to the pilgrims, who number from 6,000 to 8,000 annually. Considerable quantities of these articles are also exported to Spain, Italy, and France. The beads are either berries or are manufactured either from date-stones or from a species of hard wood called Mecca fruit. For the use of the Mohammedan pilgrims—for whom the mosque of Omar is only inferior in sacredness to Mecca and Medina—there is a considerable manufacture of amulets of black stone, reputed to be a protection against the plague.

In ecclesiastical history Jerusalem has not filled the space which might at first sight be expected. When the city was rebuilt after its destruction under Titus, the new city, Ælia, was so inconsiderable as a Christian community that it became a suffragan see of the metropolitan of Cæsarea. The council of Nice recognized a precedency of honor; but it was not till the council of Chalcedon that the church of Jerusalem was raised to the rank of a patriarchate, with jurisdiction over all the bishops of Palestine. Jerusalem, however, ranked last among the eastern patriarchates. In common with the other eastern churches, Jerusalem followed in the train of Constantinople in its secession from the west. The patriarch of Jerusalem was a party to the decree of union in the council of Florence; but his flock soon fell back into schism; and although the titular rank of patriarch of Jerusalem has been maintained in Rome, the church remained under the care of the Franciscan community, and the Latin patriarch had never resided in Jerusalem, until the accession of the present pope, Pius IX., by whom the duty of residence was re-established. In the year 1841 the governments of England and Prussia united for the establishment of a Protestant bishopric in Jerusalem, the appointment to which rests alternately with England and with Prussia.—See Robinson's *Biblical Researches;* Stanley's *Sinai and Palestine;* Williams's *Holy City;* Richardson's *Travels along the Mediterranean;* Ritter's *Erdkunde;* Sepp's *Forschungen eines Teutschen Reisenden;* on the Patriarchate—Le Quien's *Oriens Christianus;* Mosheim's *Church History;* and in regard to recent exploration, Captain Warren's *Underground Jerusalem.*

JERUSALEM ARTICHOKE, or TOPINAMBURI, *Helianthus tuberosus*, a plant of the natural order *Compositæ*, and of the same genus with the common sunflower (q.v.), is a native of Brazil. The word *Jerusalem*, in the English name, is a corruption of the Italian *girasole*, sunflower; the name *artichoke* is merely from a supposed similarity of flavor in the eatable part—the tuber—to the artichoke. The Jerusalem artichoke has straight, simple stems from 8 to 12 ft. high, and many rough, ovate-acute, stalked leaves, and in the end of autumn, but rarely in Scotland, produces yellow flowers resembling those of the common sunflower, but smaller. The thick, fleshy, and knotted perennial root produces pretty closely around it, oval or roundish tubers, sometimes 30 or 50 in number, which are reddish on the outside, and whitish within, in appearance very similar to potatoes. They have a sweetish, mucilaginous taste when boiled, and are much more watery and less nourishing than potatoes. They are, however, very palatable when properly prepared with sauce, and make very good soup. The plant is also useful for fodder for cattle, yielded by its leaves and the more tender parts of the stems. The fiber of the stems may probably be found valuable for paper-making. The stems and leaves contain much niter, and have been used for making potash. The Jerusalem artichoke is scarcely an agricultural crop in Britain, although it is to some extent in

some parts of Europe. It is common, however, in gardens, and was known in our gardens before the potato, to which it in some measure gave place. It is generally propagated by small tubers, or cuttings of tubers, like the potato; and its cultivation is in most respects similar, although the aspect of the plant is very different.

JERUSALEM CHAMBER, the room in Westminister Abbey to which the sessions of the assembly of divines, which during the summer had been held in the chapel of Henry VII., were transferred when the weather became cold. Baillie, one of the Scotch commissioners, describes it "as a fair room about the bounds of the college fore-hall, but wider. At the one end, nearest the door, and both sides, are stages of seats as in the new assembly house at Edinburgh, but not so high; for there will be room but for five or six score. At the upmost end there is a chair set on a frame, a foot from the earth, for the Mr. Prolocutor. Before it on the ground stand two chairs for the two Mr. Assessors. Before these, through the length of the room, stands a table at which sit the two scribes. The house is all well hung, and has a good fire, which is some *daintise* at London. Foranent the table, upon the prolocutor's right hand, there are three or four ranks of forms. On the lowest we five do sit; upon the other, at our backs, the members of parliament deputed to the assembly. On the forms foranent us, on the prolocutor's left hand, going from the upper end of the house to the chimney, and at the other end of the house, and back of the table, till it come about to our seats, are four or five stages of forms, whereupon their divines sit as they please, albeit commonly they keep the same place. From the chimney to the door there are no seats, but a void for passage. The lords of parliament use to sit on chairs, in that void, about the fire."

JERUSALEM CHERRY. There are two species of solanum bearing this name, which are cultivated in gardens as ornamental plants. The best known, is the *S. pseudocapsicum*, brought to England from Madeira in 1596. It is a house shrub, with a rounded top upon a short stalk, all being from 1 to 2 ft. high; leaves lance-oblong; small white flowers developing into bright red berries as large as cherries. It may be raised from seeds or grown from cuttings; seeds sown in the spring will yield fruit the following winter. The *dwarf* Jerusalem cherry is *S. capricastrum*, and is about half the size of the above, and has an orange tint, rather than scarlet. In England it is raised for Christmas decorations; an improved sort is called *S. hybridum compactum*, used for table decorations.

JERUSALEM, COUNCILS OF. I. The first Christian council (Acts xv.), held about 47 A.D., to consider questions raised in the church of Antioch concerning the obligation of Gentile Christians to observe the Jewish law. By the decision of the council it was declared to be necessary for such Christians to abstain from (1) meats which had been offered to idols; (2) blood and strangled things; (3) fornication. This council seems to have comprised only one church, that in Jerusalem, though this church may have embraced several local congregations in that city, organized, as a church in common. II. In 335 a council, formed of the bishops who had assembled at the consecration of the church of the Holy Sepulcher, restored Arius to fellowship and allowed him to return to Alexandria. III. In 349 Maximus of Jerusalem and 60 other bishops, on the return of Athanasius to Alexandria, revoked the decree against him and drew up a letter to his church. IV. In 399 a council held in consequence of a letter from Theophilus of Alexandria on the decree passed against the Origenists assented to it, and resolved not to have fellowship with any who denied the equality of the Son with the Father. V. In 453, on Juvenal's restoration by the emperor Marcian to the see of Jerusalem. VI. In 553 the acts of the fifth ecumenical council of Constantinople were received by all the bishops of Palestine except Alexander of Abilene, who was consequently deposed. VII. An important council held in Jerusalem was that of 1672. It was convened by Dositheus, patriarch of Jerusalem, and was composed of more than 60 bishops and other officers in his diocese. Its object was to oppose Calvinism which had been introduced into the east by Cyrillus Lucaris. Its measures led to its being charged with favoring Romanism, and occasioned considerable trouble in the church.

JERUSALEM CREED, a form generally supposed to have been adopted by the churches of that city. Some think that it was written by Cyril of Jerusalem, 350 A.D.; others assign it to an earlier date. It is preserved as follows in Cyril's discourses, though, if the text be correct, it confounds Christ's resurrection with his ascension: "I believe in one God, the Father Almighty, maker of heaven and earth, and of all things visible and invisible; and in one Lord Jesus Christ, the only-begotten Son of God, begotten of the Father before all worlds, very God, by whom all things were made, who was incarnate and made man, crucified and buried, and the third day ascended into the heavens, and sat down at the right hand of the Father; and is coming to judge quick and dead. And in the Holy Ghost, the paraclete, who spake by the prophets; and in one holy catholic church; and resurrection of the flesh; and in life everlasting."

JERVIS, JOHN, Earl of St. Vincent, a British admiral, was b. Jan. 9, 1734. He obtained a commission in the navy as lieut. in 1755, and in 1769 commanded the *Alarm* frigate in the Mediterranean. When she was paid off he made a tour of inspection to the naval arsenals of France and northern Europe. He was then appointed to the *Foudroyant,* the finest two-deck ship in the British navy, and engaging the *Pegase*, 74,

off Brest, he took her without the loss of a man. For this gallant exploit he was made K.C.B. In 1787 he was made rear-admiral; in 1793 he commanded the naval part of the expedition against the West India islands, sir C. Grey commanding the troops; and so successful was this expedition that although the French were well prepared and fought desperately, every island fell in succession into the hands of the British. In 1795 he received the command of the Mediterranean fleet; and here, for the first time, he made the acquaintance of Nelson, Hood, Collingwood, Hallowell, Troubridge, etc. On Feb. 14, 1797, with only 15 sail of the line, he fell in, off cape St. Vincent, with the Spanish fleet of 27 sail. Without a moment's hesitation, Jervis determined to engage the enemy, and the battle of St Vincent was fought. The genius of Nelson, however, contributed greatly to the success of the day. For this victory the king created Jervis earl St Vincent, and parliament settled upon him a pension of £3,000 a year. After having, by great firmness, repressed a mutiny off Cadiz, which threatened the loss of the whole fleet, he was compelled by ill health to return home. He was soon applied to by government to subdue the spirit of sedition which had openly manifested itself in the channel fleet; and his endeavors were eminently successful. After having held the appointment of first lord of the admiralty, and for a second time commanded the channel fleet, he retired into private life, and died Mar. 13, 1823. A public monument was erected to his memory in St Paul's cathedral. History has enrolled the name of St Vincent in the first rank of the eminent naval commanders who broke the maritime power of France and Spain, and established the naval supremacy of Great Britain.

JERVIS, John B. See page 886.

JERVOIS, Sir William F. D., b. England, 1821; was educated at Woolwich, entered the royal engineers, and completed his studies at Chatham. In 1841 he was ordered to the cape of Good Hope, where he remained seven years employed in engineering duties; and, for a time, in active service against the Boers and Kaffers. Ordered home in 1848 he continued to be employed on important engineering duty, and in 1856 was made assistant inspector-general of fortifications, deputy director of fortifications in 1862, and nominated a commander of the Bath in 1863. Sent in 1864 to report on the defenses of the British provinces in America, he examined also the Atlantic coast forts of the United States. He was appointed governor of the Straits settlements in 1875, but transferred to be governor of South Australia in 1877, a post which he still occupies (1880).

JESH'URUN, or Jesurun, a poetical or symbolical name for Israel, used three times in Deuteronomy and once in Isaiah. The root of the word denotes *straight, right, upright*, and the idea then conveyed by the name seems to be that God recognizes his people as righteous by virtue of their covenant-relation to him, as long as they observed the terms of that covenant. Another high authority derives the word from a root denoting *blessed*, according to which Jeshurun would mean Israel as supremely happy and prosperous.

JE'SI, or Iesi (anc. *Æsium*, or *Æsis*), a prosperous manufacturing t. of central Italy, in the province of Ancona, and 15 m. s.w. of the city of Ancona, on the left bank of the river Esina. It is surrounded by walls, has a cathedral, and several other churches and convents. It has manufactures of paper, silk, and woolen hosiery and linen, and a large trade in wine and olives. Jesi is the birthplace of the German emperor Frederick II. Pop. about 20,000.

JESSAMINE, a s.e. central co. of Kentucky, bounded on the s. by the Kentucky river, and intersected by the Kentucky Central railroad; 250 sq.m.; pop. '80, 10,864. The surface is undulating, the soil fertile; productions: wheat, rye, Indian corn, oats, butter, and wool. Co. seat, Nicholasville.

JESSAMINE. See Jasmine.

JES'SANT, in heraldry, springing forth, a term frequently used as synonymous with *Issuant*, rising, as a demi-lion is often represented doing, from the bottom line of a field, or upper line of an ordinary. Jessant is sometimes used improperly for *naissant*, or rising from the middle of an ordinary. The phrase *jessant-de-lis* is used with respect to a strange heraldic device representing a leopard's head *affronté* with a fleur-de-lis passing through it. The family of Moreley, Hants, bears sable, a leopard's head argent jessant-de-lis; and gules, three leopards' heads jessant-de-lis or, are the arms of the family of Cantelupe.

JESSE, John Heneage, 1815–74; b. England; son of the naturalist, Edward Jesse. He wrote numerous works illustrating periods in English history, all of which are held in repute. These include: *Memoirs of the Court of England during the Reign of the Stuarts; Memoirs of the Court of London, from the Revolution in* 1688 *to the Death of George III.; George Selwyn and his Contemporaries; Memoirs of the Pretenders and their Adherents;* etc.

JESSEL, Sir George. See page 886.

JES'SO. See Yezo.

JESSORE, a t. of Bengal Proper, capital of a district of the same name, is 77 m. to the n.e. of Calcutta, in lat. 23° 10′ n., and long. 89° 10′ east. Pop. '71, 8,152. Here, in 1838, was erected, by the zemindars of the neighborhood, a commodious school, in which instruction is given in English, Persian, and Bengali.—The *district* of Jessore

contains 5,528 sq.m., and (1871) 2,075,021 inhabitants. Salt is obtained from the southern frontier; and sugar and rum are largely prepared from the sap of the palm-tree.

JESSULMERE, a fortified city of Rajpootana, capital of the protected state of the same name, contains about 35,000 inhabitants. It is in lat. 26° 56′ n., and long. 70° 58′ e., being 1290 m. to the n.w. of Calcutta. It has several Jaina temples, and various tanks and wells, the only sources of water-supply.—The *state* of Jessulmere contains an area of 12,252 sq.m., and about 75,000 inhabitants. The country is poor and sterile, and the public revenue is under £9,000.

JESSUP LAKE, 12 m. s. of Enterprise, Orange co., Florida; the seat of a colony of the same name, in the midst of a fertile and beautiful country. The water of the lake is pure and clear, upon a sandy bottom, and fish and game birds abound. The outlet is at St. John's river.

JESUITS, or Society of Jesus, a celebrated religious order of the Roman Catholic church, which has filled a large space in the ecclesiastical and even the political history of the world. It was founded in 1534 by the well-known Ignatius of Loyola (see Loyola), in concert with five associates—Peter Le Fevre, a Savoyard; three Spaniards—James Lainez, Francis Xavier, and Nicholas Bobadilla; and a Portuguese named Rodriguez. The original object of association was limited to a pilgrimage to the Holy Land, and a mission for the conversion of infidels; but as all access to the Holy Land was precluded by the outbreak of a war with the Turks, the associates turned their thoughts to a more comprehensive organization, specially designed to meet those more modern requirements which had arisen since the reformation. With this view Ignatius of Loyola, with Lainez and Le Fevre, having meanwhile recruited several new associates, repaired to Rome in 1539, and submitted to the pope, Paul III., the rule of the proposed order, the great aim of which was expressed in their adopted motto: *Ad majorem Dei gloriam* (To God's greater glory); and the vow of which, in addition to the threefold obligations common to all Catholic religious orders, of chastity, poverty, and obedience, comprised a fourth, whereby the members bound themselves unreservedly to go as missionaries to any country which the pope might indicate to them. The new rule was approved by a bull dated Sept. 27, 1540; and in the following year the association was practically inaugurated at Rome by the election of Ignatius of Loyola as its first general.

The original constitution of the society has undergone so few subsequent modifications that it may be described without specifying these changes. Although it is commonly represented as absolutely monarchical, yet the authority of the general is, in many respects, strictly limited. It is true that the general—who is elected by a congregation of professed members selected for the purpose by the whole body of professed members in the various provinces—holds his office for life; and although he is aided in his government by a council of five assistants from the five chief provinces, he is not obliged to follow their voice, even when unanimous. But, on the other hand, he is strictly bound by the constitutions of the order; nor, although he may dispense in particular cases, is he competent, of his own authority, to annul or to alter any of their constitutions. In like manner, although no instance of deposition has ever occurred, he is liable to be deposed by the sentence of a general congregation, in certain contingencies which are specifically pointed out by the constitutions.

The body over which this general presides consists of four classes: 1. Professed, who, having passed through all preparatory stages, which commonly extend over ten or twelve years, or even a longer period, have solemnly taken the vows described above, including that of obedience to the pope. It is from this class alone that the general and all the higher officials of the society are chosen. 2. Coadjutors, spiritual and temporal: the former—who have completed their studies, and have (seldom before their thirty-second year, or even later) been admitted to holy orders—being designed to assist the professed in preaching, teaching, and the direction of souls; the latter being lay-brothers, to whom the minor and menial offices of the society are assigned. 3. Scholastics, who, having passed through the novitiate, are engaged for a long series of years, either in pursuing their own studies, or in teaching in the various schools of the order. 4. Lastly, novices, who, after a short trial as "postulants" for admission, are engaged for two years exclusively in spiritual exercises, prayer, meditation, ascetic reading, or ascetic practices, and generally in a course of disciplinary training. The administrative and executive government of the society, throughout the various provinces or countries into which it is divided, is intrusted, under the general, to provincials, who are named by the general, and hold office, as do all the other officials, for three years. In each separate province there are three kinds of communities—professed houses or residences, colleges, and novitiates. Not only the superiors of these houses—who are called by different names—but also all the various office-bearers in each, are appointed by the general, who receives at stated intervals—monthly from provinces, quarterly from colleges and novitiates—a detailed report of the character, conduct, and position of each member of the society. In all these gradations the subordination is complete, and the obligation of obedience is immediate and unreserved; and one of the most familiar accusations against the society is, that this duty of blind and implicit obedience

makes the superior the sole and final arbiter of conscience for all his subjects, the judge of good and evil, of virtue and of vice. Nevertheless, whatever may be said of the practical tendency of this relation, the Jesuits and their apologists plead that, both in the rules of St. Ignatius and in the so-called "examen" of the candidate, there is contained, in the duty of obedience to a superior, an explicit reservation for the subject, "unless where the superior should command what is sinful."

Such is the internal organization of this renowned association. The system of training applied to the formation of its members exhibits the most profound knowledge of the human heart, and the most correct appreciation of the religious instincts and impulses of mankind. The long exercises of the novitiate were designed by Ignatius to form the individul character in habits of personal holiness, and practices of personal piety. It was the business of the school and college to form the social character of the future teachers of men, and directors of the destinies of society. To learning carefully adapted to the actual condition and progress of knowledge, they sought to add manners and habits calculated to inspire confidence, and to disarm prejudice and suspicion. Unlike the older orders, they made no parade of a special calling, whether by a peculiar habit, or by peculiar exterior indications of austerity or asceticism. They enjoyed, indeed, in these respects, some exemptions from the more austere practices of other orders. Their churches were but designed as supplementary to those of the parish clergy (whose ordinary costume they adopted as their own conventual dress), without the canonical services, without much imposing or attractive ceremonial, being chiefly appropriated for religious instruction, and for the duties of the confessional. Their casuistry avoided all harsh and excessive rigor; and it cannot be doubted that some of their writers carried it to the opposite extreme. But, above all, they addressed themselves to the great want of their time—education; and through the mastery which they soon obtained in this important field, as well as their eminence in every department of learning, divinity, philosophy, history, scholarship, antiquities, and letters, they attained to unbounded influence in every department of society. It may be added that to their extraordinary success in thus drawing to themselves, for education, the youth of every country into which they were introduced, the historians of the society ascribe much of the opposition which they encountered from the universities and collegiate bodies whose monopolies they invaded.

The organization of the society is settled, in every important particular, by the original rules and constitutions of St. Ignatius. The opponents of the Jesuits, however, allege that, in addition to these public and avowed constitutions, there exists in the society, for the guidance of their hidden actions, and for the private direction of the thoroughly initiated members, a secret code, entitled *monita secreta* (secret instructions), which was meant to be reserved solely for the private guidance of the more advanced members, and which was not only not to be communicated to the general body, but was to be boldly repudiated by all, should its existence at any time be suspected or discovered. This singular code, a master-piece of craft and duplicity, was first printed at Cracow in 1612, and has been repeatedly reprinted by the enemies of the Jesuits; but it is indignantly disclaimed by the society. The accounts of the time and circumstances of its discovery are suspicious and contradictory. The book has been repeatedly condemned, both at Rome and by other authorities, as well as by the society, and its apocryphal character is now commonly admitted (see Barbier, *Dictionnaire des Anonymes*).

The history of the society is so varied in the different countries that it is necessary, although very briefly, to allude to each separately, dividing it into three stages—the rise, the suppression, and the restoration of the order.

In Italy, its early career was brilliant and unclouded. Before the death of the first general—Ignatius—in 1556, the Italian Jesuits had swelled to 1000 in number, and the order was established in twelve provinces. Their first check in Italy occurred in Venice. In the contest of this republic with Paul V. (q.v.), the Jesuits, taking the side of Rome, accepted in 1606 the alternative, proposed by the senate, of leaving the Venetian territory; nor was it till 1656 that they were re-established in Venice, from which time they continued to enjoy undisturbed influence in Italy until the suppression of the order.

The earliest settlements of the Jesuits, outside of Italy, were in Portugal and Spain. In 1540 Rodriguez—who was a Portuguese nobleman—and Francis Xavier opened colleges in Portugal, at the invitation of the king. Francis Borgia, duke of Gandia, in Spain, was equally well received in his native country, where the order flourished so rapidly, that, at the time of the suppression, the Spanish Jesuits numbered above 6,000.

In France, although a house for novices was founded in Paris by St. Ignatius in 1542, the university of Paris opposed their introduction as unnecessary and irreconcilable with its privileges. They were distasteful to supporters of the Gallican liberties, and still more to the Huguenots. The jurists, the parliament, and the partisans of absolutism were alarmed by the free political opinions which had found expression in some of the Jesuit schools. On the other hand, the democratic party attributed to them a sinister use of their influence with courts. And thus their progress in France was slow, and their position at all times precarious. It was with much difficulty that the parliament of Paris consented to register the royal decree which authorized their establishment. In more than one instance the university protested against their schools as invading its

privileges. In the wars of the League they did not fail to make new enemies; and at length the assassination of Henry III. by Clement (although no evidence of any connection with the Jesuits appeared in his case), and the circumstance, still more industriously urged against them, that Chatel, who attempted the life of Henry IV., had at one time been a pupil in their schools, led to their expulsion from France in 1594. They were reinstated, however, in 1603; but, on the assassination of Henry IV. by Ravaillac, the outcry against them was renewed. Although it seems quite certain that this clamor was utterly without foundation, yet the opinions held by one of their order, Mariana (q.v.), on the right of revolt, although condemned by the general, gave a color to this and every similar imputation. A less deep but more permanent and formidable movement against them was gradually stirred up at a later period, by a combination of all the causes of unpopularity already described, to which new point was given by the well-known Jansenist controversy, and by the questions as to the imputed laxity of the moral teaching of the Jesuits, and their alleged corrupt and demoralizing casuistry. What the ponderous and indignant prelections of the Sorbonne, and the learned folios of the Dominican and Augustinian schools had failed to accomplish, the wit and brilliancy of the celebrated *Lettres Provinciales* of Pascal (q.v.) effectually achieved. The laxity of some of the Jesuit casuists was mercilessly exposed by this brilliant adversary, who represented it as the authorized teaching of the order, and the crafty maxims and practices popularly ascribed to the society were placed before the world in a light at once exquisitely amusing and fatal to the reputation of the body. The attempts at rejoinder on the part of the Jesuits but served to fix the ridicule more firmly. Of the thousands who laughed at the happy humor, or sympathized with the vigorous raillery of Pascal, few, indeed, could plod through the learned but heavy scholasticism of his adversaries. In vain the Jesuits insisted that the obnoxious casuists had been condemned by the society itself; in vain they showed where their opinions differed from those imputed to them. The wit of Pascal remained unanswered; and whatever were the logical merits of the controversy, no doubt could be entertained as to its popular issue. The pungent pleasantries, too, of the *Provincial Letters* were but a foretaste of the acrimony of the later Jansenistical controversies, in which the Jesuits stored up for themselves an accumulation of animosities in the most various quarters, the divines, the lawyers, the courtiers, which were destined to bear bitter fruit in the later history of the society in France. Nevertheless, after a long conflict, they enjoyed a temporary triumph in the last years of the regency and the beginning of the reign of Louis XV.

In Germany the Jesuit institute was received with general and immediate favor. In the Catholic territories, Austria, Bavaria, and the Rhenish principalities, they not only founded colleges and other establishments of their own, but they were appointed at Ingolstadt and other universities to hold important professorships, and received in many dioceses the charge of the episcopal seminaries then newly established. Before the death of the first general—St. Ignatius—the order could reckon in Germany twenty-six colleges and ten professed houses; and Lainez, the second general, was able to say that there was scarce a German town of note which had not a Jesuit college. In the mixed states their career was not so unclouded. Their great learning and ability, and their thorough devotion to the church, made them at once eager and formidable polemics. In Hungary and Transylvania much bitterness arose out of their introduction; the same may be said of Bohemia and Moravia; and, through the whole course of the thirty years' war, the Jesuits, though in many instances wrongfully, were regarded by the belligerent Protestants as the soul and center of the Catholic camp.

In the Netherlands they encountered some opposition at first; but in 1562 Lainez, the second general of the order, came to the Low Countries, and a college was opened at Louvain, which eventually became one of the greatest colleges of the order. In the Netherlands the Jansenistical party was less numerous and less influential than in France, and the conflict with them was less permanently prejudicial to the Jesuits. In the Protestant kingdoms the Jesuits obtained entrance only as missionaries, and in some, as in England, Scotland, and Ireland, under circumstances of great difficulty and peril. From England they were excluded by the penal laws under pain of death; nevertheless, with a constancy and devotedness which it is impossible not to admire, they maintained through the worst times an unbroken succession of missionaries in many parts of England. They often resorted to the most singular disguises, and generally bore false names; and several of the old Roman Catholic mansions still show the "priest-hole," which was contrived as a retreat for them in cases of sudden emergency. Into Ireland they effected an entrance almost at the first foundation, and after many vicissitudes, towards the close of the reign of Charles II., they had more than one considerable college for the education of youth.

But a still more fertile field for the enterprise of the order was that of the missions to the heathen, in which they outstripped all the older orders in the church. In the Portuguese colonies of India the successes of Francis Xavier (q.v.) are well known. The results of their missions in China and Japan (see Ricci Schall) were even more extraordinary, as also in Northern and Central America. Above all, their establishments in the southern continent, in Brazil, in Paraguay and Uruguay, upon the Pacific coast, in California and the Philippine islands, were missions of civilization as much as of religion; and sir

John Bowring recognizes in the present condition of the native population of the Philippines to the present day the results of the judicious labors of the early Jesuits.

Such was this association in the first stage of its history. At their first centenary jubilee the members already numbered 13,112, distributed over 32 provinces. At their suppression, a century later, they had increased to 22,589, and were possessed of 24 professed houses, 669 colleges, 176 seminaries, 61 novitiates, 335 residences, and 275 missionary stations in infidel countries, or in the Protestant states of Europe.

The decline in the fortunes of the Jesuits was rapid and decisive in its consummation. The first blow which they sustained was in Portugal. An exchange of colonial territory having been effected between that kingdom and the crown of Spain, the so-called "reductions" of Paraguay (q.v.), in which the Jesuit missionaries possessed an authority all but sovereign, were transferred to Portugal. The native Indians having resisted this transfer, the Portuguese ascribed their disaffection to the Jesuit missionaries. The Portuguese minister, Pombal de Carvalho, to whom the Jesuits allege that their possessions in Portugal had long been an object of desire, instituted a commission of inquiry; and while it was still pending, an attempt on the life of the king, Joseph, which was laid to the charge of the Jesuits, furnished him with a fresh ground of impeachment; and without waiting any juridical proof of either accusation, he issued, in Sept., 1759, a royal decree, by which the order was expelled from the kingdom. This example was followed in other kingdoms. In France, under the duke de Choiseul, the immediate occasion of the disgrace of the Jesuits was a trial in the civil courts. Father Lavalette, as procurator of the order in Martinique, had consigned to a commercial house in Marseilles two valuable cargoes, which were seized by English cruisers, and Lavalette being unable to meet the bills, the Marseilles merchants proceeded successfully against the order. The Jesuits replied that Lavalette acted not only without the authority of the order, but against its positive constitutions, and appealed to the parliament of Paris against the sentence. The inquiry thus raised presented an opportunity of which the ancient enemies of the order in the parliament eagerly availed themselves. A report on the constitutions of the society, highly damnatory, was speedily drawn up, and a demand was made for the suppression of the order, as being irreconcilable, in its constitution and practice, with the interests of the state and of society. A strong effort was made to arrest the proceeding; but a powerful court-faction, aided by the secret influence of the royal mistress, Mme. de Pompadour, who was irritated by the refusal of her Jesuit confessor to grant her absolution unless on condition of her separating from the king, and supported in the press by the philosophic party, carried all voices, public and private, against the Jesuits. An attempt at compromise was proposed to the general, father Ricci, by which the obnoxious constitutions might be abolished or modified; but his unbending reply, "*sint ut sunt, aut non sint*" ("let them be as they are, or let them cease to exist"), cut short all negotiation; and a royal edict was published in 1764, by which the society was suppressed in the French territory. This example was followed by Spain in 1767, with circumstances of great harshness and severity; and by the minor Bourbon courts of Naples, Parma, and Modena. The court of Rome had zealously but vainly interposed in their behalf, and from Clement XIII. especially they received earnest support. But his successor, Clement XIV. (q.v.), inclining in this and all other questions of church and state to the side of peace, having in vain endeavored to procure from the courts by which they were condemned a relaxation of their severity, and being pressed by the ambassadors of France and Spain, at length issued, July 21, 1773, the celebrated bull, "Dominus ac Redemptor Noster," by which, without adopting the charges made against the society, or entering in any way into the question of their justice, acting solely on the motive of "the peace of the church," he suppressed the society in all the states of Christendom. The bull was put into execution without delay. In Spain and Portugal alone the members of the society were driven into exile. In other Catholic countries they were permitted to remain as individuals engaged in the ministry or in literary occupations; and in two kingdoms, Prussia under Frederick the Great, and Russia under Catherine, they were even permitted to retain a quasi-corporate existence as a society for education.

What was meant, however, to be the suppression of the society, proved but a temporary suspension. The ex-members continued in large numbers, especially in the Papal states and northern Italy; and soon after the first storm of the revolution had blown over measures began to be taken for the restoration of the society. The first overt reorganization of them was in 1799, by the duke of Parma, at an inconsiderable town called Colorno, in which one of the earliest novices was the afterwards celebrated Angelo Mai. This proceeding on the part of the duke of Parma was barely tolerated by the pope; but in 1801 Pius VII. permitted the re-establishment of the society in Lithuania and White Russia, and with still more formality in Sicily in the year 1804. It was not, however, until after the restoration, and the return of Pius VII. from captivity, that the complete rehabilitation of the Jesuit order was effected by the publication of the bull *Solicitudo Omnium Ecclesiarum*, Aug. 7, 1814. In the same year they opened a novitiate at Rome; and in 1824 their ancient college, the Collegio Romano, was restored to them. In Modena, Sardinia, and Naples they were re-established in 1815, as also in Spain, where their ancient property and possessions were restored to

them. They were again suppressed by the Cortes in 1820, and again restored in 1825; but at the final change of public affairs in Spain in 1835, the Jesuits shared the fate of the other religious establishments which fell under the double influence of revolution and retrenchment. In Portugal they have never obtained a firm footing. Dom Miguel, in 1832, issued a decree for their restoration; but almost before they had entered into possession, the order was reversed by Dom Pedro in 1833. Their position in France has been one of sufferance rather than of positive authorization; nevertheless, they were very numerous and influential, and their educational institutions held the very highest rank. In Belgium they established themselves after the revolution, and they now possess many large establishments, professed houses as well as colleges, which are very numerously attended by the Catholic youth, as well of Belgium as of other countries. In Holland, also, they possess several considerable houses, as well as in England, Ireland, the United States, and, within a recent period, Scotland. In Switzerland they opened in 1818 a college at Fribourg, which became a most flourishing establishment, and subsequently they extended themselves to Schwytz and Lucerne; but the war of the Sonderbund (one of the main causes of which arose from the Jesuit question) ended in their expulsion from the Swiss territory. Of the German states, Bavaria and Austria tolerated their re-establishment for educational purposes. In the Italian provinces of the former, as also in the Tyrol, they had enjoyed a certain freedom until the revolution of 1848. In Russia they were placed under sharp restrictions in 1817; and a few years later, 1820, in consequence of their successful efforts at proselytism, they were banished by a final ukase from the Russian territory, whence they still remain excluded. The Italian revolution of 1848 seriously affected their position in that country. In that year Pius IX. found it expedient to permit the breaking up of the college and other houses in Rome. They returned, however, with the pope himself, and resumed possession of their ancient establishments. On the proclamation of the kingdom of Italy, they withdrew from Sardinia, Naples, Sicily, and the annexed territories in general. In the recent legislation of the kingdom of Italy, the Jesuits have been visited with a special measure of repression. While each of the other principal religious orders is permitted to retain its "mother house" at Rome, in which the general of the order may reside, the Jesuits have been required to quit their principal convent of the Gesu. In Germany also they have been treated with exceptional severity, being held responsible as the main agents and advisers of the measures adopted in the Vatican council, which are complained of by the government as infringing the rights of the state. By the law of July 4, 1873, the order is excluded from the empire; its establishments are abolished; and all foreign Jesuits are ordered to be expelled, and the German members of the society, as well as of kindred orders and congregations, to be "interned."—The literature of the history of the Jesuits, whether hostile or friendly, is almost endless in extent and variety; we shall only refer to two of the most recent works on either side—Gioberti's *Il Gesuita Moderno*, 1847, and Cretineau Joly's *Histoire de la Compagnie de Jesus*, 1845. See also *Die Preussischen Kirchen-gesetze des Jahres*, 1873, *mit Einleitung und Kommentar*, by Dr. Paul Hinschius (Berlin, 1873).

JESUITS (*ante*). The religious instructors of the first Catholic settlers of Maryland were Jesuits who came with lord Baltimore from Europe. John Carroll, born in Maryland, while receiving his education in France became a member of the society of Jesuits, and was with some other Americans completing his studies when the order was suppressed. At the commencement of the American revolution he returned to the United States, and after the establishment of peace he was appointed vicar-general. The progress of the Jesuits in the United States since that time has been rapid. They are divided into two provinces, those of Maryland–New York, and Missouri, and several missions. The province of Maryland–New York has establishments in Md., Penn., N. Y., Mass., R. I., and the Dist. of Columbia. The province of Missouri has establishments in Mo , Kansas, Ill., Wis., Ohio and Mich. The mission of N. Y. founded by the province of France, was incorporated with the province of Md., 1879. The Jesuits in Canada and among the Indians of Lake Superior are subjects of the province of England. The province of Germany has a mission among the Germans of N. Y., and Ohio. The mission of New Orleans, established by the province of Lyons, has several monasteries and colleges in New Orleans and Mobile. The provinces of Naples and Turin have numerous missionaries in Colorado, New Mexico, Cal., and among the Rocky mountain Indians. The Jesuit colleges in the U. S. are: Georgetown univ., D. C.; the theological seminary at Woodstock, Md.; St. John's, Frederick, Md.; Loyola, Baltimore: St. Louis univ.; coll. of the Immaculate Conception, New Orleans; St. Charles, Grand Coteau, La.; Spring Hill, Ala.; St. Joseph's, Bardstown, Ky.; Gonzaga, Washington, D. C.; St. Ignatius coll., San Francisco; Santa Clara, Cal., St. Joseph's, Philadelphia; St. John's, Fordham, N. Y.; St. Francis Xavier, N. Y. city; Holy Cross coll., Worcester, Mass. The Jesuits in the U. S. numbered, 1884, about 1,200.

JESUITS' BARK. See CINCHONA.

JESUP, MORRIS KETCHUM, b. Conn., 1830; has been a member of the New York chamber of commerce, president of the Five Points house of industry and of the young men's Christian association, and manager of the Presbyterian hospital. He is a public-

spirited citizen of New York, one of a class devoting much time and thought to the advancement of charitable enterprises and the support of benevolent institutions.

JESUS, the Greek form of the Hebrew word *Joshua, Jehoshua,* "Jehovah, the Savior," is the name given to the son of the Virgin Mary by the angels who announced his approaching birth (Matt. i. 21; Luke i. 31). The reason of the name was at the same time declared: "for he shall save his people from their sins."

The date of the birth of Jesus is now generally fixed a few years—at least four years—before the commencement of the Christian era. The reasons of this opinion we cannot here state, but it may be observed that the reckoning of dates from the birth of Christ did not begin till the 6th c., when error on such a point was very probable. The precise date of the birth of Jesus, however, cannot be determined, nor can the year of his death be much more confidently stated. The common computation fixes his death in 33 A.D., or when he was probably at least 37 years of age. As to the month or day of the birth of Jesus, nothing is known, although the circumstance that shepherds were watching their flocks by night makes it very certain that it did not take place at that time at which the festival of Christmas (q.v.) is held.

With the accounts given by the evangelists of the birth of Jesus, his ministry, death, resurrection, and ascension into heaven, every one may be supposed familiar.

The opponents of Christianity have not, in general, disputed the historic truth of the gospel narrative of the life of Jesus; the miracles of course excepted. Celsus and other heathen writers admitted even the truth of the miracles, but alleged them to have been wrought by magic, or to have been too few and inconsiderable to attest the claims of Jesus. Their modern successors have, of course, rejected these views. Some of them have endeavored to show that Jesus was ambitious of earthly power, but this has not been a prevalent theory. More generally they have regarded him as merely adapting his conduct and teaching to the notions common among the Jews, and in particular to their expectation of the Messiah; whilst they admit the unequaled excellency of the religious and moral system taught by him. The inconsistency of this scheme is held to be obvious by orthodox theologians. They allege that it represents the noblest and purest system of morality as based on imposture. The character of Jesus, as displayed both in his life and in his teaching, is one of the great arguments relied on by the advocates of Christianity. See JESUS CHRIST.

The correspondence of Jesus with Abgarus, king of Edessa, although we have it in Eusebius, can only be ranked with monkish legends. Of no greater value are descriptions of the personal appearance of Jesus, and pictures of him. See CHRIST, PICTURES OF.

JESUS, COLLEGE OF, Oxford. In 1571 queen Elizabeth, on the petition of Dr. Hugh Ap-rice, or Price, granted a charter for the foundation of Jesus college, in which there were to be a principal, eight fellows, and eight scholars. In 1622 king James I. granted the college a new charter, including a code of statutes. These original foundations were set on a new footing in 1685 by the will of sir Leoline Jenkyns, who added considerable endowments to the college, but arranged that the greater part of the fellowships, scholarships, and exhibitions should be confined to Wales. The endowments were subsequently increased to 19 fellowships, and 18 scholarships. The commissions under 17 and 18 Vict. c. 81, converted five of the fellowships into scholarships, and entirely suppressed one fellowship. Of the remaining fellowships one moiety was confined to the principality, and the other thrown open. Four may be lay fellows; the others must take orders within one year after they shall be of sufficient standing to be masters of arts. The scholarships are confined to Wales, with the exception of king Charles I.'s scholarships (confined to Jersey and Guernsey), and two others, which are open. There are nearly thirty exhibitions in this college, of about £40 per annum. This college presents to about 20 livings, and has ordinarily about 200 names on the books. This was the first Protestant college, and in its statutes the Protestant religion was asserted and guarded by many enactments.

JESUS CHRIST (JESUS, *ante*), the name given in the New Testament to the son of God incarnate (see INCARNATION), Jesus being the Greek form of the Hebrew Joshua, signifying Jehovah the Savior, and Christ the Greek translation of the Hebrew Messiah, signifying the anointed. Matthew's gospel gives a table of his human descent, traced from Abraham and David to Joseph, the husband of Mary; Luke's table, reversing the order, begins with Joseph and ascends to David, Abraham, and Adam, as created immediately by God. Both evangelists give accompanying statements, involving the truth that Jesus was not Joseph's son (Matt. i. 18–25; Luke i. 26–35: ii. 33, 34: iii. 23). The fact that these tables contain different names from David to Joseph has perplexed commentators and others who have sought to harmonize the statements. The limits of this article permit a reference only to two of the many suggestions that have been made: 1. That while Matthew gives the genealogy of Joseph and mentions in each case the actual father, Luke's table contains Mary's ancestors. This view is consistent with the language which Luke employs. If Mary was the daughter of Heli, Joseph was by marriage his son. And that Mary's genealogy should be given seems reasonable and even necessary in order to show that Jesus was actually descended from David; only his legal descent from him being shown by Joseph's genealogy in Matthew's account. 2 The

chief importance of these tables was, at the beginning, in order to satisfy the Jews that Jesus was the son of David. They, when the gospels were first published, were much better able to judge concerning the accuracy of the tables than we are now; and there is no evidence that they impugned it or denied that Jesus was the son of David. For other nations, and at this day, when the truth of Christianity and the Scriptures is attested by so many proofs, it is sufficient to keep in mind that these tables were probably family records, which, in the nature of the case, were likely to be true, and may therefore be accepted as such, even when, in our ignorance, they cannot be explained. The divine conception of the human nature of Jesus is the central fact of Christianity as God's salvation for mankind. As such, it needed to be fully proved; and God's proof of it was addressed by special revelation to the two persons most directly and mutually concerned; to Mary before it occurred, and to Joseph afterward. Both needed to be divinely assured of it, that their peace and welfare might be secured, and that they might become the two witnesses by the record of whose united testimony the truth should be certified to all the world. The fact having been thus proved and the testimony recorded, no additional mention of it is afterwards found in Scripture; yet all the New Testament is in harmony with it and implies it. The birth of Jesus at Bethlehem, fulfilling Micah's prediction made 700 years before, was in a room occupied by dumb animals outside of the crowded khan. Yet it was heralded by Gabriel to the shepherds and by the song of the heavenly host. His presentation in the temple was among the children of the poor, yet it was signalized by the benedictions and prophecies of Simeon and Anna. The star seen by the eastern magi guided them with their homage and offerings to his feet. The transient flight into Egypt afforded him refuge during the little that remained of Herod's cruel and criminal career. His presence in the temple when 12 years old, the age at which a Jewish child became "a son of the law," remarkable at the time for his questions and answers that astonished the learned teachers in the midst of whom he sat, was yet more grandly illustrated to future ages by the one recorded utterance of his childhood which it occasioned: "Why did you have to seek me? Did you not know that it was necessary for me to be in the places and among the affairs which belong to my Father?" This sentence marked his consciousness of the higher nature which glowed within him, and of his earthly work. It contains the germ of the character and life ascribed to him in the gospels, which are without inconsistency or imperfection in thought, word, or deed. Of his residence in the seclusion of Nazareth three facts are recorded: his subjection in his youth to Joseph and Mary; his progress in wisdom and stature and in favor with God and man; and his occupation in early manhood as "a carpenter." The way for his public ministry was prepared, as prophets had foretold, by the brief mission of John the baptizer. His baptism at the Jordan, administered by John in compliance with his own direction to do it promptly, was followed by the baptism of the Holy Ghost and the attestation from heaven, "This is my beloved Son." His special temptations in the wilderness represented several of the chief classes of temptations to which mankind are liable: to seek sustenance desperately in doing wrong; to be presumptuous instead of submissive; and to aim at worldly success by yielding to Satan or any other the worship and service due to God alone. His public ministry in Jerusalem was introduced and closed with similar symbolic acts of cleansing the temple by driving out the traders in animals and money who had gradually established themselves in its courts. At the first, when the Jews asked him for a sign to justify his course, he pointed them onward to the end, when his resurrection from the dead would vindicate his claim "Destroy this temple [his body], and in three days I will raise it up." At the last, when they asked for his authority, he pointed them back to the beginning of the proofs that the kingdom of God was at hand: "The baptism of John, was it from heaven or of men?" The mighty works which he wrought were not violations of the laws of nature, but exercises of power in the various departments of nature through a superhuman administration of its laws—such superhuman administration being the surest, mightiest, most fundamental law in nature. He turned water into wine; so does he habitually, throughout the vineyards on a thousand hills by the chemistry of earth and sky, turn water into the blood of the grape: he stilled the winds and waves on the sea of Galilee; so does he make the storm a calm on the broad oceans of the world: he multiplied five loaves for 5,000 men; so does he year by year, in myriads of harvest fields, multiply grain into food for man and beast: he healed diseases through all Galilee; so does he maintain health-giving and healing processes in every land: he gave limbs to the maimed; so does he give them to the millions who, consequently, are not destitute of them: he conferred sight upon the blind; so has he conferred it on all who are not blind: he restored life to the dead; so has he imparted it to the living, all of whom once were without it: he cast out evil spirits, suffering them not to speak; so are they everywhere subjected to his will. The works of which a particular account is given in the gospels are only specimens of a much larger number, some estimate of which may be formed from three general statements, all relating to the beginning of his public life: in Capernaum, "all that had any sick with divers diseases brought them to him, and he laid his hands on every one of them and healed them;" "he went about all Galilee, healing all manner of sickness and all manner of disease;" "his fame went throughout all Syria, and they brought unto him all sick people that were taken with divers diseases and torments, and those that were possessed with devils, and those that were lunatic,

and those that had the palsy, and he healed them." The teaching of Jesus announced a pure and perfect morality, in the midst of abounding corruption and of merely external righteousness; it proclaimed the law of love to others, instead of selfishness as the moving spring of human action; revealed the living God as the Father of mankind; and foretold the resurrection of the dead, to be followed by the judgment and by the award of eternal life and eternal death. At the beginning of his ministry the sermon on the mount was spoken, which has become the standard of morality throughout Christendom; and after the three years and a half which, so far as can be judged, was the duration of his public course, had witnessed his strenuous activity in instructing all classes of the people, in cities, villages, and desert places, the last day of his teaching seems to have surpassed any other, even of his life, in the number, variety, and greatness of its themes. Beginning early in the morning and continuing far on into the evening, he drew lessons from the blighted fig-tree; spake the parables of the two sons, the husbandmen, and the marriage of the king's son; answered the hypocritical question of the Pharisees and Herodians, the scoffing question of the Sadducees, the earnest question of the scribe, and added his own silencing counter-question concerning the Messiah; pronounced the terrible denunciations against the scribes and Pharisees, and the doom of Jerusalem; gave his estimate of the comparative value of offerings to the Lord; received the Greeks, who sought admission to him, as representatives of Gentile nations; foretold the destruction of the temple, the close of the Jewish dispensation, and the end of the world; spake the parables of the virgins and the talents; and closed all with the prediction that the remembrance of Mary's offering should accompany the preaching of the gospel throughout the whole world. A large part of the ministry of Jesus was around the sea of Galilee, the shores of which, as a microcosm, were crowded with people of many lands. This was the beginning and the emblem of the advancement which his teaching and his living power have since made. The chief work of his disciples was, for centuries, around the Mediterranean, then the center of empire and civilization. The third advance of Christianity was along the shores of the Atlantic, on which the nations of western Europe and their colonies were and are the most influential portion of the world. And now Christ's work is advancing also on both shores of the still wider Pacific. The sinless character of Jesus was manifested in a life which, while perfectly free from self-seeking, was actively exerted in beneficent work, was ennobled by love to those who hated him, and irradiated by filial obedience to God. His claim to be the anointed Son of God was advanced to his disciples, to Nicodemus, to the woman of Samaria, in gatherings of the people, among the chief priests and Pharisees, and, most solemnly of all, before the great council of the nation who, because of it, condemned him to death. And this claim was attested not only by his sinless life, his mingled meekness and majesty of manner, and his mighty works, but also by audible acknowledgments from heaven, at his baptism, at his transfiguration, and just before his crucifixion; and, most powerfully of all, by his resurrection from the dead and the consequent establishment and advancement of the world's faith in him from age to age. The crucifixion of Jesus is a part of Jewish history, and is as certain as any other event in that; it is a part of Roman history, and is as certain as any other event in that; it is as certain as that the history of the Jews was crossed by that of the Romans. And the fact of his crucifixion being sure, all Scripture teaching concerning him is established; for the Scriptures written before it led to it; and those written after it were its results, followed, as it was, by his resurrection on the third day. "It marks also the boundary between ancient and modern days. From the hour when Christ died began the death-knell to every Satanic tyranny and every tolerated abomination; and from that hour holiness became the ideal of all who would name him as their Lord."

JESUS COLLEGE, Cambridge, was founded by John Alcock, bishop of Ely, in 1496, to whom the king granted for the purpose the nunnery of St. Radegund, which was suppressed for the dissolute conduct of its inmates. The appointment of the master rests with the bishop of Ely. There are sixteen foundations, and three by-fellowships, and numerous scholarships. Among the distinguished members of this college are to be noted Richard Fox, bishop of Winchester in the reign of Henry VII.; archbishop Cranmer; and Fisher, bishop of Rochester in the reign of Henry VIII.

JESUS, SOCIETY OF THE SACRED HEART OF, is virtually the society of Jesuits under another name. At the close of the 18th c. the Jesuits, in view of the suppression of their order, established other orders which would continue their peculiar work under a new name and form. The principal of these were the society of the Sacred Heart of Jesus established in Belgium in 1794, by the ex-Jesuits De Broglie, Pey, and Tournély, and the Baccanarists or *Fathers of the Faith of Jesus*, established in Italy in 1798 by Baccanari, a layman of Trent, aided by several ex-Jesuits. In accordance with the desire of pope Pius VII., these two societies united in 1799, and made considerable progress in Italy, France, Germany, and England.

An order of women by the same name and with similar aims was founded in 1800 at Paris, and approved in 1826 by Leo XII. Its first leader was the maiden, Barat. Engaging zealously in the education of young women, they are regarded with favor, and flourish, not only in Roman Catholic but Protestant countries. They have more than 100 establishments in Europe, and exist also in America and Africa.

JESUS, SOCIETY OF. See JESUITS.

JESUS, SON OF SIRACH. See ECCLESIASTICUS.

JET, a bituminous mineral of a perfectly black color, not harder than ordinary coal, but capable of being easily cut and carved, and of receiving a very beautiful polish. It takes its name from the river of Lycia, from the banks of which it was obtained. In the time of Pliny, the name of the river and a small town on its bank was Gages, and the pieces of jet obtained from thence were called gagates, afterwards successively corrupted into gagat and jet. It is now found in many parts of the world. In Great Britain it is obtained chiefly at Whitby, in Yorkshire, where it is found mixed with fragments of bituminized wood of coniferous trees in the upper lias or alum shale of that district. Jet is only a peculiar form of pitch-coal, containing about 37½ per cent of volatile matter, like the albertite of New Brunswick and some of the cannel coals. It is electrical when rubbed, hence it has been called black amber by the Prussian amber-diggers, when it occurs in sand and gravel beds.

Very large quantities are obtained in France in the department of Aude, where it gives employment to numerous artisans, who form it into rosary beads, crosses, and other trinkets, which are extensively sold in Roman Catholic countries. Spain also supplies fine jet, which, like that of the French workings, is found in irregular veins in the lower marls of the cretaceous series, corresponding with the Sussex gault. The Spanish jet is found at Villaviciosa, in the province of the Asturias, and is principally manufactured at Oviedo. As a material for mourning ornaments, jet is admirably adapted, and for that purpose is used largely in this and other countries.

JETER, JEREMIAH BELL, D.D., 1802–80; entered the Baptist ministry in 1822 in Virginia, and, except during a brief period about 1849, when he was settled in St. Louis, Mo., continued to preach in that state, as pastor of a church in Richmond. He was a writer of ability, was senior editor of the *Religious Herald,* published in Richmond, and the author of a number of works, including *Campbellism Examined; Memoir of Rev. M. W. Clafton; Life of Mrs. Henrietta Shuck;* etc.

JET'SAM means goods cast into the sea which sink and remain under water. They belong to the crown until the owner appears and claims them. See FLOTSAM. The subject is now chiefly important from its effects on the owners, and is treated under the head of jettison (q.v.).

JETTISON is, in the law of the United Kingdom, the throwing overboard of a ship's cargo, either in whole or in part, in cases of necessity, so as to lighten the vessel in a storm, or to prevent capture, or for other justifiable cause. It is obvious that great discretion is required, so as to judge when the proper time arrives for resorting to this desperate expedient; and in case of part only of the cargo being sacrificed, to select which part. Each case must depend upon its own circumstances; and the master of the vessel is the authorized agent, so as to bind all parties in such a situation. It often happens that the goods belong to different owners, and therefore, in order to compensate the owner of the particular goods thrown overboard, the doctrine of general average is resorted to. See AVERAGE. In case of a storm, the several persons interested in the ship, freight, and cargo in general contribute ratably to the loss; but there are exceptions when the goods were carried on deck. When the goods sacrificed by jettison have been insured, the insurer has the benefit of this contribution or average *pro tanto.*

JETTY, an embankment or pier extending into the sea, and built of earth, stone, fascines, timber, or other suitable material, either singly or combined. Jetties are applied to rivers and tidal harbors, to increase the depth over bars by narrowing the channel, and thus concentrating the current. Jetties have been constructed at the mouths of many European rivers, as the Oder and Danube, and the entrances of many harbors, as Boulogne, Dunkirk, and Calais. The Danube jetties increased the depth from 9 to 20 ft. and transformed it into one of the best harbors on the Black sea. The great erosive power of water causes rivers to transport vast quantities of sediment, which are deposited at the mouths, forming the delta. Capt. Eads says that the suspended matter carried by streams depends upon the rapidity of the current, modified by the depth; and that the relation between the amount of sediment transported and the velocity is very sensitive, a decrease in velocity causing a deposition of suspended matter. Bearing in mind that, other things equal, the velocity increases as the area of the river-section diminishes, the problem is to construct barriers which shall decrease the area. The hydraulic engineer bases his plans upon a careful survey of the delta, and upon a knowledge of the amount of water discharged by the river in a unit of time, and the variations of water-line at different seasons, the areas of sections, the location of bars, the direction of prevailing winds, the effect of storms, etc. The bars existing at the mouth of the Mississippi river have been a serious impediment to commerce; various plans have been suggested for the maintenance of a channel. Dredging proved ineffectual. This river and its affluents drain an area of nearly 1,250,000 sq.m.; the yearly rainfall of the basin is 30.4 in.; and the average discharge, 21,300,000,000 cubic ft. of water per year, or 675,000 cubic ft. per second. Capt. James B. Eads first proposed the application of jetties to the Mississippi river, presented the scheme to congress, and March 3, 1875, was author-

ized to undertake the work at the risk of himself and associates. In the face of much opposition he brought the energy of the river to bear upon the great bar of sand and silt separating South pass from the deep water of the gulf of Mexico, thus increasing the depth from 7½ to 30 ft. and achieving a complete success. The merchants of New Orleans have arranged for a visit to their port by the Great Eastern, and direct exportation from the river-basin has been stimulated. Acts of congress awarded Capt. Eads for the expense of the work, $4,250,000—payable in installments as different depths and widths of channel should be obtained; $1,000,000 for his services, to be paid when it is known that the jetty works duly maintain the channel; and $100,000 yearly for 20 years, to repair the works and preserve the depth. The depth between jetties required by contract is 30 ft.; width of channel, 350 ft.

Description of the Mississippi Jetties.—The river divides into three principal mouths or passes; the jetties are at the entrance to the middle or South pass. The east jetty extends from Eastside Landsend, at or near East point signal, along the edge of the old bar and into the gulf, a distance of 11,800 ft.; its course is a broken and a curved line deflecting at the gulf end 1700 or 1800 ft. to the right of the first alignment on the shore end prolonged. The west jetty is 1000 ft. w. of the east jetty, parallel to it, and, starting opposite a point 4,000 ft. from the head of the east jetty, extends 7,800 feet. The Kipp dam, 600 ft. long and perpendicular to the west jetty at its head, joins it with the west shore; its construction is like that of the jetties. The jetty lines were established by driving piles; permanent cross sections were made 500 ft. apart by locating sighting points on and behind each jetty in the sections and in diagonal sections; and periodical soundings were made which furnished data for the construction of profiles showing the changes in the channel. The chief constructive materials used in the jetties are willow mattresses, stone, palmetto cribs, and blocks of concrete. The boughs are brought from a crevasse 23 m. above the jetties, where there is a heavy growth of willows; they are obtained with difficulty, as the mud is covered, in the flood season, with a foot of water. The mattresses are constructed upon inclined planes, having a rise of 1 in 10; the lower end rests in the water, while the upper is 6 ft. above. The mattresses vary in width from 20 to 40 ft. or over; they are generally 100 × 40 feet. Longitudinal strips, 2½ × 6 in., are first laid on the ways, 4½ ft. apart; across these a layer of willow boughs, 6 in. thick, is placed, with the switch ends extending 2 or 3 ft. beyond the outside strips; a second layer, at right angles to the first, is placed next above; and so on, till the required thickness, generally 2 ft., is attained. Finally, transverse strips are fastened to the bottom strips with hickory pins. The mattress is then launched, and towed to its destination, where it is tied to the piles, loaded with stone, and sunk to its position on the river bed or upon other mattresses. The bottom row of mattresses was sunk throughout the entire length of the jetties before beginning the second layer. The placing of a single mattress was always accompanied by a deepening of the channel somewhere, and, what was still more remarkable, a deposit of sand abutting against the mattress began at once on the sea side. In this manner the jetties have been greatly strengthened, while w. of the west jetty hard fine sand has been deposited, extending from the jetty to outlying reefs and shoals, and reducing the depth at high water from 9 ft. to a few inches. Capt. Eads and assistants, guided by experience, have modified their plans. A section of the finished jetty, as originally built, discloses a pile at one side; a number of mattresses, separated by layers of stone, and diminishing in width from the bottom to tide level, abut against the pile, while, upon the river side, the steps formed by the mattresses are covered with stone forming a slope. After the action of the water had produced a slope in the river-bed conforming to the new cross-section, another mattress was sunk on the slope adjoining the foundation-mattress and also covered with stone. The surface of the jetty above sea-level was covered with stone, and crowned with dimension-stone laid dry.

The flow of water between the jetties has been increased by temporary constructions, such as sheet piling and wooden aprons; a dam turns the water from Grand bayou into the pass; and dikes at the head of the pass still farther increase the flow. Max E. Schmidt, C.E., one of the assistant engineers, says: "There were three destructive elements to be overcome by these works: 1. The abrading power of the river current; 2. The momentum and impact of the waves; 3. The undermining power of the waves. With a full appreciation of the magnitude of these forces, no design was made, nor was any detail allowed to be put into the works, which did not strictly adhere to the following practical laws: 1. That a broad and elastic foundation will prevent undermining; 2. that proper slopes will resist impact of the waves; 3. That tight work will stop leakage; and 4. That work maintained at a uniform height will obstruct the escape of water by overflow." Noting in their order how far these laws have been fulfilled, we see, 1. That the two rows of mattresses, which have sunk into the bottom till a firmer strata was reached, afford a secure foundation; 2. Where the jetties pierce the bar, deposits on the sea side give ample protection, while, on the river side, wing dams—projecting perpendicularly 150 ft. from the jetties—stopped the current and caused sediments to be deposited, producing a gentler and more resisting slope, with a simultaneous deepening of channel: at the gulf ends of the jetties and extending some distance towards shore, the slopes have been improved by sinking cribs of palmetto wood at both sides of the mattresses, and then building up the desired slope with stones. 3. The compression of the mattresses by the weight of stone and the infiltration of sand has done much to dimin-

ish the leakage, but more time is needed to completely fill interstices, and the use of gravel and broken stone near the jetty top will greatly assist. 4. The shore jetty sections are now maintained above high-water mark without difficulty. Upon the summit of the gulf sections a continuous embankment of concrete, varying in dimensions, but usually 12 ft. wide and 3½ ft. thick, has been constructed for a distance of 3,800 ft. upon the east jetty, and 2,800 ft. upon the west jetty. The concrete was molded in blocks weighing from 25 to 72 tons, and these were cemented together afterwards, forming one solid stone of great resisting power on each jetty, and aiding in the diminution of leakage by compressing the mattresses; it is hoped that the weight will cause the elastic limit of the willows to be reached, thus increasing its impermeability. A massive parapet is to surmount the concrete, the time of construction at any point depending upon the subsidence of the jetties. July 10, 1879, capt. Eads reported the completion of the jetty work; depth through the jetties over 30 ft.; at the head of the pass, 26 ft.—measurements being taken with the river at its lowest stage. The improvement of harbors by jetties depends upon the general principles cited as applicable in the great works at the mouth of the Mississippi; and many harbors on the great lakes and elsewhere in the United States have been thus made more accessible.

JEVONS, William Stanley, b. England, 1835; grandson of William Roscoe, the eminent historian, educated at University college, London, and made a fellow of his college in 1862. He held a position in the Sydney (Australia) mint, 1854–59. In 1866 he received the appointment of professor of logic and mental and moral philosophy, and Cobden lecturer in political economy in Owen's college, Manchester; in 1872 was elected a fellow of the royal society; and in 1876 received the honorary degree of LL.D. from the university of Edinburgh. During the latter year he was appointed professor of political economy in University college, London. He published *The Principles of Science —a Treatise on Logic and Scientific Method; Theory of Political Economy;* and *Money, and the Mechanism of Exchange;* also, *Religion and Labor.* He d. 1882.

JEW, Wandering. See Wandering Jew.

JEWEL (Ital. *gioiello*, from *gioia*, joy), a personal ornament, usually understood to mean a decoration in which one or more precious stones are set. Popularly, there is much confusion between the terms gem and jewel; the former belongs especially to precious stones, and the latter to ornaments formed of the precious metals with or without the aid of gems. The word is derived from the Italian *gioia*, joy, whence *gioiello*, a jewel, such ornaments being indicative of pleasure.

JEWEL or JEWELL, John, D.D., 1522–71: an English clergyman, largely concerned in the religious troubles of the reigns of Mary and Elizabeth. At the accession of the latter queen he assisted in the re-establishment of the Protestant religion, was made bishop of Salisbury, and was an eloquent preacher. He published many controversial works, and his famous *Apologia Ecclesiæ Anglicanæ* was by Elizabeth's orders placed in every church in the country, and has ever since been looked upon as a classic of the Anglican communion.

JEWELL, a co. in n. Kansas, on the border line of Neb., 900 sq.m.; pop '80, 17,475. The surface is rolling prairie-land, with fertile soil, affording good pasturage. It is watered by branches of the Republican and Solomon rivers. Co. seat, Jewell City.

JEWELL, Marshall, b. N. H., Oct. 20, 1825. He was bred to the tanning business, but left it to engage in telegraph construction in the south-western states. In 1850 he established himself in business in Hartford, Conn., as a manufacturer of leather belting, and was very successful. His ability, public spirit, and warm interest in public affairs, gave him prominence as a private citizen; and his hearty support of the general government during the war of the rebellion drew special regard to him as a man qualified by his energy, integrity, and patriotism for the public service. He was elected governor of Connecticut in 1869, 1871, and 1872. In 1873 he was appointed minister to Russia, where he is said to have made himself master of the secret of making Russian leather. He returned to the United States in 1874 to enter the cabinet of gen. Grant as postmaster-general. In consequence of a misunderstanding with the president he resigned before the expiration of the latter's second term, returning to his home in Hartford. In 1880 he was chosen chairman of the national committee of the republican party, in which capacity it became his duty to direct and supervise the campaign for the choice of a president of the United States—a task which he fulfilled with great energy and success. He d. 1883.

JEW'ELRY. The manufacture of jewels has in all times been a test of the artistic powers of a nation; for, being intended only for personal adornment, the genius of the jeweler has been directed to the production of the largest amount of beauty in the most limited space. It is probable that the wearing of ornaments of gold and silver is almost as early as the discovery of those metals. A mere hole drilled through the small pieces of gold or silver, to enable them to be strung round the waist or neck, would be the first stage; then, when the ductility of the metals became known, they would be beaten probably into bands or rings, giving rise to ring-money; these rings, when increased in size, would become torques for the waist, neck, arms, or ankles, labrets for the lips, and rings for the ears and fingers. As refinement increased, these articles would be made more and more ornamental; and the original object, of mere convenience and safety in

carrying the much-valued metals, would be lost in the secondary one of personal adornment; the art of the goldsmith would be called into play, and the taste of the nation would be marked by the good or bad designs in demand for this purpose. Jewels being mere articles of luxury and taste, their possession always indicates to a certain extent the wealth of nations, and we are as much impressed with the advanced state of the ancient Egyptians by the nice art and refined taste exhibited in the jewelry found in their tombs, as by the vast architectural works of which they have left so many remains; indeed, modern art, with all its wondrous advances, cannot do more than equal the exquisite workmanship of those elegant golden jewels sent by the late viceroy of Egypt and M. Mariette to the international exhibition, which were taken from the tombs of ladies of distinction, whose mummies they were found decorating. There is an essential difference between the jewelry of ancient and modern times. Our goldsmiths depend very much upon the processes of casting, drawing, stamping, and other metallurgical operations, and produce thereby great accuracy of outline and high finish. The ancients wrought by hammering, chasing, and *repoussé*, depending entirely upon the taste and skill of the artist, instead of the perfection of his tools and mechanical arrangements; consequently, their works bear the stamp of artistic productions, whilst modern works, however beautiful, have usually the character of mere manufactures executed with mechanical precision rather than artistic taste; and what they gain in nicety of finish is more than counterbalanced by what is lost in richness of effect. See DIAMOND.

JEWELRY (*ante*), MANUFACTURE OF, in the United States. The wearing of jewelry was earnestly discountenanced in the New England colonies as a practice savoring of worldly pride and ostentation, and therefore hardly compatible with piety. This form of asceticism, though it had its root in religious feeling, was no doubt stimulated by the poverty of the times. Gold beads appear to have been exempt from the prevalent proscription, being cherished as heirlooms, and transmitted with pride from mother and daughter; and as the colonies became prosperous, it became more usual for the fortunate possessors of gold coins to hand them over to the goldsmith to be cast into rings or chains. In the colonies s. of New England the religious objection to wearing jewelry was not so much felt, but the demand for it was limited, and most of that which was worn was imported. The jewelers of the period sometimes made plain rings and chains, but the manufacture of jewelry as a business was unknown in this country until some time after the war of independence. It is believed to have been first introduced in Newark, N. J., somewhere between 1790 and 1795, by Epaphras Hinsdale, who died in 1810, and was succeeded by Mr. Taylor, one of his workmen, who greatly enlarged the business and invented new machines for the prosecution of the work. Somewhere about 1800 the business was introduced in Providence, R. I., and was rapidly extended there. Mr. Hinsdale and Mr. Taylor had made all their articles of solid gold, but the Providence manufacturers soon began to make what is known as "filled work," the face of the jewel being stamped out from a thin ribbon of gold, and the shell filled with a solder of some baser metal, and then covered on the back with a thin layer of gold of an inferior quality. Of course this sort of work, which was scarcely distinguishable by an untrained eye, could be sold for much less than work of solid gold, and therefore it found a ready market. In 1812 Mr. George F. Downing began to manufacture various articles of jewelry in Newark, and in 1821 he removed to New York, where the manufacture of filigree jewelry had been introduced in 1812 by a Frenchman named La Guerre. From this time onward the business rapidly increased, until it met a check in the financial revulsion of 1837. With the return of national prosperity it revived, and was immensely increased by the discovery of gold in California. It met with another check in the disasters of 1857, and had hardly recovered when the war of the rebellion gave it another blow; but it was revived and immensely expanded when the country was flooded with paper money, and fortunes began to be amassed suddenly. Diamonds, which before that time had been rarely worn, were now in great demand, and the setting of them, previously confined to Europe, became a recognized branch of the jewelry manufacture in the United States. Imitation jewelry was also extensively manufactured to meet the wants of the poorer classes, who were infected by the fashion of the time. The trade in this spurious stuff was immense, yielding an aggregate profit of millions of dollars to those engaged in it. The annual production of jewelry in this country in 1850 was estimated at a little less than $2,000,000. In 1860 the number of establishments had increased to 463, employing a capital of more than $5,000,000, giving employment to about 6,000 persons, paying wages to the amount of $2,600,000, and producing annually goods valued at about $10,500,000. The productions of hair jewelry was a separate branch of business, and the goods annually produced amounted to somewhat less than $15,000. Lapidaries' work, which was carried on in 7 establishments, was valued at about $37,000 yearly. In 1880 the number of establishments was 739, employing over 12,000 persons, using capital amounting to about $11,400,000, paying wages to the amount of nearly $6,500,000, and producing goods valued at over $22,000,000. The great centers of jewelry manufacture are New York, which in 1880 had 240 establishments, and produced goods valued at $5,002,198; Providence with 142 establishments, and products valued at $5,444,092; Philadelphia, 29 establishments, $789,886; Boston, $481,722; Springfield, Mass., not given; Cincinnati, $418,900; San Francisco, 12 estab-

lishments, $315,115; Newark, N. J., 65 establishments, $4,002,677. The financial revulsion of 1873 depressed the business greatly, but it is now again becoming prosperous.

JEWELS, Use of, in Heraldry. By an egregiously absurd and unnecessary complication of nomenclature, introduced by way of adding dignity to the science of heraldry, the tinctures of the arms of peers have sometimes been designated by the names of precious stones: argent is pearl or crystal; or, topaz; gules, ruby; azure, sapphire; sable, diamond; vert, emerald; and purpure, amethyst.

JEWETT, Charles Coffin, 1816–68; educated at Brown university and Andover theological seminary. Acted as librarian at Andover, and made a catalogue of Brown university library, of which institution he was also librarian and professor of modern languages, 1843–48. He was afterwards librarian of the Smithsonian institution, and from 1858–68 superintendent of the Boston public library. Mr. Jewett was the first of the modern school of American librarians, and his *Notices of Public Libraries in the United States of America*, 1851, and suggestions of a new method of cataloguing libraries, have been of great service. He was one of the earliest, if not the first in this country, to adopt the card-cataloguing system to public libraries.

JEWETT, Milo Parker, ll.d., b. Vt., 1808; educated at Dartmouth and Andover, and occupied a chair in Marietta college, Ohio, for three years from 1835. Having been a Presbyterian, he changed to the Baptist church, and in 1861, on the foundation of Vassar college for women, he was made its first president, a position which he resigned in 1876. He was among the first to introduce the common-school system into Ohio and Alabama. He wrote *The Mode and Subjects of Baptism*, which passed through many editions. He d. 1882.

JEWETT, Sarah Orne. See page 886.

JEW-FISH, a common name of several species of the *serranidæ*, which sometimes attain a weight of several hundred pounds. A species caught along the Florida coast, called the *promicrops gnasa*, sometimes weighs as much as 700 lbs. The jew-fish of California is the *stereolepis gigas*.

JEWISH LITURGY. See Liturgy.

JEWISH SECTS, a term generally applied (after Josephus) to certain divergent schools which grew up in the midst of Judaism, subsequently to the Syrian wars. So far, however, from forming, as the word would seem to imply, separate communities with places of worship and a religious law of their own, antagonistic to that of their brethren, the disciples of the different "sects" belonged to the same religious community, adhered to the same practical religious law, and consequently could not well look upon each other as, in a manner, heretics. The chief points at issue were certain abstract doctrines, in connection with the peculiar manner in which this law, as far as it is contained in the Scriptures, was interpreted and further developed. While the *Pharisees* (q.v.) claimed for certain time-hallowed observances and doctrines not found in the Bible a divine origin, drawing them back through tradition—orally transmitted from generation to generation—to Moses and the Sinai itself, and while they, by peculiar rules of an exegesis of their own, proved these same doctrines to lie often latent, as it were, in the very letters of the Bible—the *Sadducees* (q.v.) rejected the divine origin of the "oral law," as well as certain spiritual dogmas not distinctly set forth in the sacred record. An advanced or exalted class of Pharisees were the *Essenes* (q.v.), who formed a kind of brotherhood, far away (with only solitary exceptions) from the corruption of cities, chiefly intent upon the exercise of practical virtues, and ruled by a severe code of morals. The tenets of each of these three "sects" will be found treated separately under the headings indicated.

At a later period, shortly before and after Christ, numerous divergent religious doctrines, for the most part the result of a confused mixture of Judaism and Hellenism, or rather Alexandrianism (see Gnostics), were promulgated, and found adherents both within and without the pale of Judaism. Many and obscure are the names of these "sects" recorded by the early fathers of the church, but very little is known respecting their history and dogmas. Mention is made of *Hellenians* (Hillelites?), not to be confounded with the large body of the Hellenists (q.v.) and *Meristes* (antagonistic school of Shamai?), *Galileans* (Christianizing Jews?), *Herodians* (adherents of the foreign government?), *Gaulanites* (Rabbinists of exaggerated tendencies?), *Masbotheans* (strict Sabbatarians?), *Hemerobaptists* (Essenes?), etc.

In the 8th Christian c. (761 according to Munk), the Sadducean doctrine of the invalidity of the "oral law"—a doctrine which had died out after a brief existence—was revived again by Anan ben David, who is supposed to have held a high spiritual office (Resh Gelutha? Gaon?) at Bagdad at the time of caliph Abu Giafar Al-Mansor (754–775 a.d.), and who, rejecting the Talmud and Midrash as the work of man, only allowed such laws and ordinances to be binding upon the community which resulted immediately from a simple and natural Scriptural exegesis. He thus became the founder of the most important sect of the *Karaites*, who, within an astonishingly brief period, spread over Palestine, Egypt, Greece, Barbary, Spain, Syria, Tartary, Byzantium, Fez, Morocco, and even to the ranges of the Atlas. They are now, however, found only in small numbers in Poland, Galicia, Odessa, the Crimea, Constantinople,

Jerusalem, and Alexandria. Abrogating the "rabbinical" traditions, they erected a new traditional system of their own, to be altered and freely developed by each of their successive spiritual heads. Prayer, fasting, pilgrimages to Hebron, are the points of religious practice to which they pay the greatest attention. Their general conduct is even by their antagonists allowed to be of the highest moral standard. They have produced an extensive special Hebrew literature of their own, chiefly consisting of works on theology, philosophy, mathematics, astronomy, etc. The greatest number of these is now found in the imperial library at St. Petersburg. Some of their principal authors are Anan, Shalmon b. Jeruham, Joseph b. Noah, Jeshua, Jehudah Hadassi, Aron b. Joseph, Aron b. Eliah, Eliah Beshitzi, Kaleb, Moses Beshizi, Mardochai b. Nissan, etc.

Another rather curious sect, known as the *Shebsen*, was that founded by Sabbathai Levi from Smyrna (1625–77), who proclaimed himself the Messiah, and found numerous followers throughout Germany, Poland, Italy, and Holland. Sultan Mohammed IV., however, put an end to his mission by imprisoning him, and making him adopt Mohammedanism. Many of his disciples followed his example, others turned Roman Catholics—adhering, withal, to their former doctrines and tenets, consisting chiefly of the belief in the Messiahship of their master, a distinct leaning to the dogma of the Trinity, and the abandonment of the hope of a final return to Jerusalem under the guidance of "Messiah ben David." They put a thoroughly mystical interpretation upon the Bible, rejected unconditionally the Talmud, and extolled their special Kabbalistic gospel, the Zohar, above all things created. This sect did not die out until the end of the last century, Jakob Frank, their last supreme pontiff (whose more intimate friends and followers called themselves by his name, *Frankists*), dying in a debtor's prison on the Rhine (1791).

We have finally to mention the modern *Chasidim*—not to be confounded with the ancient Chasidim (q.v.)—or *Beshters* (Baal Shem Tob), a side branch of the former sect, taking its stand like this on the Kabbala, but remaining ostensibly within the province of rabbinical Judaism. They are chiefly remarkable by their wild mode of praying, their supreme contempt for any but mystical and religious science, by their belief in the miracles wrought by their temporary chiefs or saints (*Zaddik Baal Shem*), who rule their community unconditionally, are supposed to be invested with divine powers, and who also cure all their bodily ailments. The grandeur and pomp with which these are surrounded, contrasts most strikingly with the simple mode of life of their flock. Constant repentance, joyfulness, disinterestedness, benevolence, peacefulness, with intrepidity, cleanliness, and temperance, are some of the chief points of the practical doctrine of this sect. One of the great reproaches, however, brought against them is, that their "joyfulness" often leads them into transgression; that, in fact, they are rather given to sensuality. They are very numerous in Poland, Galicia, Russia, and Palestine.

The modern "Reformers," aiming chiefly at a simplification of the ceremonial, and abrogation of what they consider to be abuses and late additions in the divine worship, cannot well be called a sect—although, for the most part, they have synagogues and prayer-books of their own—since they belong, to all other intents and purposes, to the great body of the Jewish community. As the chief promoters of this movement may be considered Zunz, Geiger, Chorin, Creizenach, Holdheim, Hess, Stern, etc.

JEWS (corrupted from *Yehudim*), the name given since the Babylonish captivity to the descendants of the patriarch Abraham, who, about 2,000 years B.C., emigrated from Mesopotamia, on the e. side of the Euphrates, to Canaan or Palestine. They were originally called Hebrews (q.v.). Monotheism, or a belief in one God, the practice of circumcision, and the expectation of ultimately possessing the land in which they then sojourned, were the three distinguishing peculiarities transmitted by Abraham to Isaac, and from Isaac to Jacob and his descendants. The picture of patriarchal life presented to us in the book of Genesis is marked by an exquisite beauty and simplicity, and bears traces of a great antiquity. In consequence of a famine in Canaan, Jacob, on the invitation of his son Joseph, who had become chief minister of the king of Egypt, went down thither with all his family, which numbered 70 "souls," and obtained from Pharaoh permission to settle in the land of Goshen. Here the Hebrews resided, according to Exod. xii. 40, 430 years [Bunsen (Exodus) calculates *fourteen* centuries] according to the genealogical table of the Levites, in Exod. vi. 16–25, however, their sojourn would not have lasted longer than 210 or 215 years; most of the commentators, therefore, take, with Josephus, the 430 years to indicate the period from Abraham to the exodus (cf. Galat. iii. 17). During the lifetime of Joseph, and probably for some generations afterwards, they were well treated, and prospered; but a new dynasty, supposed by some—with little show of reason—to have been that of the Hykshos (q.v.), arose, and they were reduced to relentless slavery. A deliverer at length appeared in the person of Moses (q.v.), a man of grave and heroic character, who, though brought up by the daughter of Pharaoh as her son, and trained in all the learning of the Egyptians, was nevertheless filled with an intense and indignant patriotism, that acquired an additional elevation from the ardor of his religious feelings. The circumstances that preceded and characterized the exodus (about 1600 B.C.)—such as the 10 plagues and the crossing of the Red Sea—are a source of continual controversy between the rationalistic and the supranaturalistic schools of biblical criticism; but the *fact* of an exodus would be dis-

puted only by the wildest skepticism. The entire history of the people is pervaded by the memory of this grand event, upon which, as it were, their whole national existenee is based; it inspires their poetry and consecrates their religion; and the passover, with all its ceremonials and mementoes, was instituted expressly to remind them of that wondrous night of sudden liberation; while the feast of tabernacles was to recall to the memory of the latest generations the wanderings through the desert; and pentecost, the act of the legislation on Sinai. Whether, however, in 215, or even in 430 years, the 70 "souls" could have increased to 600,000 adult men, or, including wives and children, to between 2,000,000 and 3,000,000 souls, is a point to be determined rather by physiologists than by theologians.

The wandering in the wilderness of the Sinaitic peninsula is said to have lasted 40 years, though a record of the events of two years only has been preserved. These, however, are obviously the most important, as they contain an elaborate account of the giving of the law (Exod. xix. *et seq.*), which is represented as a direct revelation made to Moses by Jehovah himself, who descended upon Mt. Sinai in fire, amid the roar of thunders and the quaking of hills. The antiquity, however, of the priestly or eeelesiastical portions of the Pentateuch is keenly disputed by many modern scholars of the highest reputation, who endeavor to show the probability of such passages having been composed and inserted subsequent to the great organization of the priesthood by David; and in proof of this, point, among other evidences, to the Book of Judges (q.v.), which narrates the history of the Hebrews for 300 years *after* the conquest of Canaan, and which yet contains scarcely a single trace of the existence of a religious institution among them. Yet it is allowed almost on all hands that the *foundations*, at least, of the Jewish theocracy, and probably also a large part of the superstructure, were the direct work of Moses himself, who indeed appears to have been pre-eminently fitted for the task of a legislator, not to mention the fact that the ritualism of the Hebrews has many striking points of contact with that of the ancient Egpytians, with whieh he was well acquainted. This view, of course, does not interfere with the theory of a later composition of the Pentateuch (q.v.), in its present shape and its suecessive redaetions and enlargements.' But whatever period be allowed for the sojourn in the desert, the rough, nomadic life, the frequent fighting with the fierce Bedouin tribes, through whose territory they passed—besides the lofty influences of a stern religion—had transformed the runaway slaves of Egypt, by the time they approached the eastern borders of Canaan, into a nation of high-spirited and irresistible warriors.

Before proceeding further, it behooves us to trace a general outline of the Mosaic legislation. The laws promulgated under the "Covenant" were, as we said, not entirely new. Many were merely the solemn confirmation of ancient patriarehal tenets, sueh as the worship of one supreme being through sacrifices, prayer, vows, circumeision, the government by heads of tribes and families, etc. Others must have been adaptations of Egyptian institutions. Others, again, owed their existence to the altered eireumstances of the community; and it is undeniable that some of the ordinanees eontained in the Pentateuch were never carried into practice. The fundamental features of the religious as well as political constitution—both closely interwoven with each other—are the following: God is Creator and Lord of the universe. The universe is his own, and to man the use of all created things has been intrusted by his will. God is therefore the king of the people. By the priests he is visibly represented. No man has the right to dispose of his own liberty. The soil is only given to the people for the *usufruct;* man has no further individual right of possession over it. Every seventh year it is to be left to itself. The sale of land is prohibited; and after seven times seven years, every lease and mortgage of it is null and void, and it is to return to the heirs of those to whom it was originally assigned at the first division of the land.

The office of the priests (q.v.) was in the hands of the tribe of Levi (q.v.), more especially the descendants of Aaron (q.v.). The Levites assisted in the management of the sanctuary and the holy rites, copied and expounded the books of the law, kept the genealogical lists, and had the care of the general instruction of the people. Together with the priests, they had administrative and judicial functions, and they gave their judgment always in the name of God. The high priest (q.v.) constituted the highest court, and his was the oracle (Urim and Thummim). Periodical feasts (q.v.) were instituted, in order that the dependence from the divine King should should always be kept in view by the people. Every seventh day the body should rest from labor (Sabbath), as every seventh year the soil was to rest (Sabbatical year); and every fiftieth (7×7) year (Jobel) was the great year of remission. Three annual feasts, partly of an agricultural, partly of a historical character, were the passah (q.v.), the feast of weeks (q.v.), and the feast of tabernacles (q.v.). No less was the first of the seventh month to be kept holy. The tenth of the same month was instituted a day of atonement and forgiveness of sin.

The form of government was at first a theocratical one. The people was divided into 12 tribes, which formed small republics, but were all united under the invisible rule of Jehovah. General national assemblies decided upon war and peace, and the like. Special provisions are also found for the contingency of the election of a king. After the conquest of Palestine, every city had a judge, chosen by the heads of the families and tribes. The punishments were either death, flagellation, or fines. Three Levitical cities were

named by Moses as asylums or places of refuge for man-slayers whose guilt was not yet fully established. Every free citizen was bound, from his 20th year, to military service in case of war. To the besieged city, terms of capitulation were first to be offered; were these rejected, the city was to be taken, and the males were to be put to the sword. In all other cases, the virtues of charity, justice, and kindness, even towards animals, are repeatedly impressed upon the people. How far these fundamental rules were either further developed or neglected, we cannot show in this place.

The "land of promise" became theirs at last (about 1430 B.C.), under Joshua (q.v.), the successor of Moses. Tribe after tribe was swept from its ancient territory, and for the most part either annihilated or forced to flee. Yet the whole bulk of the native inhabitants was not extirpated or wholly expelled, nor even subdued, till a much later period; a circumstance fraught indeed with the most disastrous consequences to the new commonwealth. The conntry was now divided among the tribes. The magnificent pastoral region to the e. of the Jordan had before been chosen by the tribes of Reuben, Gad, and the half-tribe of Manasseh at an early period, because they "had a very great multitude of cattle" (Numb. xxxii. 1); but they now for the first time entered on possession of it. The land w. of the Jordan was parceled out to the remaining—Judah, Simeon, Dan, Benjamin, Ephraim, the second half-tribe of Manasseh, Issachar, Zebulon, Naphtali, and Asher. The tribe of Levi received, instead of a province, 48 cities scattered throughout Canaan and the tenth part of the fruits of the field, and were allowed generally to settle individually throughout the land where they chose (LEVITES, PRIESTS, HIGH PRIESTS).

After the death of Joshua (about 1350 B.C.), the want of a chief to the young state became sadly palpable. Little regard was paid to the "Mosaic" institutions; the single tribes pursued their own individual interests; intermarriages with the idolatrous natives weakened the bond of union still further; and the next consequence was that the tribes were singly subdued by the surrounding nations. At this juncture there arose at intervals valiant men and women—shofetim—judges, who liberated the people from their oppressors, the Moabites, Philistines, Ammonities, Amalekites, etc. Fifteen of those are named, some of whom appear to have been contemporary with each other, and to have exercised authority in different parts of the country. This period constitutes the "heroic" age of Hebrew history. Among these judges, the prophetess Deborah (q.v.), Gideon (q.v.), Jephthah (q.v.), the herculean Samson (q.v.), and the prophet Samuel (q.v.), are especially notable; the last mentioned was, in every sense of the word, the greatest Hebrew that had as yet appeared since the days of Moses. With him begins a new and higher stage in the development of the national character, chiefly through the instrumentality of the priestly order, whose spiritual, for the most part well-directed and humanizing, influence was by him first exalted and most distinctly brought to bear upon the commonwealth. Samuel, the first of the prophets, was also the last of the republican chiefs of the confederate tribes. Wearied of their intestine feuds, harassed by the incursions of their predatory neighbors, chiefly, however, goaded by the characteristic desire "to be like all the other nations" (1 Sam. viii. 5), the people compelled him, when he had become "old and gray-headed" (1 Sam. xii. 2)—while the behavior of his sons, whom he had made judges, unfitted them to be his successors—to choose for them a king (1080 B.C.).

The first who exercised regal authority was Saul (q.v.), the Benjamite. But though a distinguished warrior and a man of royal presence, he appears not to have possessed the mind of a statesman; and his willfulness, and the paroxysms of insanity, brought on chiefly, as it would seem, by the openly-expressed dissatisfaction of Samuel, finally alienated from him many of the bravest and best of his subjects. After his death on Mt. Gilboa, David (q.v.), his son-in-law, was proclaimed king. This monarch was by far the greatest that ever sat on the throne of Israel. He ruled, as is commonly computed, 1058–1018 B.C. His reign, and that of his equally famous son, Solomon (q.v.), are regarded as the golden time of Hebrew history; the remaining aborigines of Canaan and its borders—viz., the Philistines, Edomites, Amalekites, Moabites, etc., were thoroughly subdued; the boundaries of the Hebrew kingdom were extended as far as the Euphrates and the Red sea; Jerusalem was captured by escalade, and made the capital of the conqueror; the priesthood was reorganized on a splendid scale; the arts of poetry, music, and architecture were cultivated; schools of prophecy (first established, probably, by Samuel) began to flourish; a magnificent temple for the worship of Jehovah was built in the capital; and commercial intercourse was carried on with Phenicia, Arabia, Egypt, with India and Ceylon, and perhaps with even Sumatra, Java, and the Spice islands. But there was a canker at the root of all this prosperity. The enormous and wasteful expenditure of Solomon forced him to lay heavy taxes on the people. His wealth did not enrich them; it rather made them poorer; and although gifted with transcendent wisdom and the most brilliant mental powers, towards the end of his life he presents the sad spectacle of a common eastern despot, voluptuous, idolatrous, occasionally even cruel, and his reign (1018–978 B.C.) cannot but be regarded, both politically and financially, as a splendid failure. After his death (978), the Hebrew monarchy, in which the germs of dissension—chiefly jealousy against the influence of Judah—had been silently growing up for many a year, split under Rehoboam into two sections (975 B.C.); the kingdom of Judah, under Rehoboam, son of Solomon; and the kingdom of Israel,

under Jeroboam the Ephraimite. The former of these countries comprised the two tribes of Judah and Benjamin, together, probably, with some Danite and Simeonite cities; the latter, the remaining 10. After 19 kings, of different dynasties, among whom Jeroboam, Ahab, Joram, Jeroboam II., Pekah may be mentioned, had reigned in Israel, few of whom succeeded to the throne otherwise than by the murder of their predecessors, the country was finally conquered by Salmanassar, king of Assyria; its sovereign, Hoshea, thrown into prison; the mass of the people carried away captive (720 B.C.) into the far east, the mountainous regions of Media, and their place supplied by Assyrian colonists, brought from Babylon, Persia, Shushan, Elam, and other places by Asnappar. These, mingling and intermarrying with the remnant of the Israelites, formed the mixed people called Samaritans (q.v.). Among the 20 kings of the house of David who ruled over Judah, Jehoshaphat, Uzziah, Hezekiah, and Josiah distinguished themselves both by their abilities as rulers, and by their zeal for the worship of Jehovah. Yet even they were, for the most part, unable to stay the idolatrous practices of the people, against which the prophets' voices even could not prevail. Other kings were, for the most part, more or less unfaithful themselves to the religion of their fathers and unable to withstand the power of the Egyptians, Assyrians, and Babylonians, to each of whom they in turn became tributary, until at last Nebuchadnezzar stormed Jerusalem (586 B.C.), plundered and burned the temple, put out the eyes of king Zedekiah, and carried off the most illustrious and wealthy of the inhabitants prisoners to Babylon. The Israelites, who had been exiled 134 years before the inhabitants of Judah, never returned. What became of them has always been, and we presume will always remain, matter of vaguest speculation. See BABYLONISH CAPTIVITY.

All that we know of the condition of the Hebrews during the captivity, relates exclusively to the inhabitants of the kingdom of Judah. And so mild, especially during the later years, was the treatment which they received in the Babylonian empire, that when liberty was announced to the whole body of the captives, only the lowest of the low returned, together with the Levites and priests (cf. Talm. Kidd. iv. 1). The book of Esther likewise bears testimony to the vast numbers that had remained scattered over the vast empire. See BABYLONISH CAPTIVITY.

The influence of this exile, however, was of a most striking and lasting nature. Babylon henceforth became and remained, up to about 1000 B.C., the "second land of Israel"—in many respects even more highly prized than Palestine. To this brief period of the captivity must be traced many of the most important institutions of the synagogue in its wider sense. Common religious meetings, with prayer, were established; many of the Mosaic laws were re-enforced in their primitive rigor; and the body of the "oral law" began to shape itself, however rudely, then and there. Besides, there began to grow up and unfold itself the belief in a Messiah, a deliverer, one who should redeem the people from their bondage. The writer of the last 27 chapters of Isaiah, who is usually called by modern scholars the "Younger Isaiah," is held to belong to this period, and expresses in glowing language the hopes of the exiles; no less do many of the psalms belong to this time. "From this period, likewise, the immortality of the soul and the belief in another life appear more distinctly in the popular creed, in which, if they had existed at all, they had been obscured by the more immediate hopes and apprehensions of temporal rewards and punishments revealed in the law. But in the writings of the Babylonian prophets, in the vision of dry bones by Ezekiel, and in the last chapter of Daniel these doctrines assume a more important place; and from the later books, which are usually called the Apocrypha, these opinions appear to have entered fully into the general belief. In other respects, particularly in their notions of angels, who now appear under particular names, and forming a sort of hierarchy, Jewish opinions acquired a new and peculiar coloring from their intercourse with the Babylonians" (dean Milman's *History of the Jews*, Lond. 1829, vol. ii. pp. 13, 14). Compare articles DEMONS and DEVIL.

The exile is generally computed to have lasted 70 years. This is not strictly correct; it lasted 70 years if reckoned from the appearance of Nebuchadnezzar in anterior Asia (606), but only 52, counting from the destruction of Jerusalem. When Cyrus, the Persian king, had overthrown the Babylonian kingdom (538 B.C.), the condition of the Hebrews improved considerably. The new monarch must have felt that he could rely on them, as being really strangers in the land, and necessarily more or less hostile to their conquerors, the Babylonians. Daniel rose higher and higher in dignity and power, and finally became "supreme head of the pashas to whom the provinces of the vast Persian empire were committed." Through his influence, Cyrus was prevailed upon to issue an edict permitting the exiles to return home. A minute account of the circumstances attending this joyous event is given in the Books of Ezra and Nehemiah. Upwards of 40,000 persons, including 4 of the 24 courses of priests, set out under the leadership of Zerubbabel, a descendant of their old kings.

Notwithstanding the many and harassing obstacles raised by the Samaritans, the mixed people of Assyrians and Israelites, against whom the scrupulous exiles entertained strong religious and national objections, the rebuilding of the "temple of the Lord" was at last commenced in the first year of Darius, and in the sixth year of his reign it was finally completed. [HAGGAI; ZACHARIAH.] The waste cities were likewise rebuilt and repeopled. During the long reign of Darius the Jews were blessed

with a high degree of material prosperity. Under his successor, Xerxes, probably occurred the incidents recorded in the Book of Esther. In the seventh year of Artaxerxes, the successor of Xerxes, Ezra the priest, invested with high powers, and accompanied with a great retinue of his professional brethren, headed a second migration. Thirteen years later, during the reign of the same monarch, Nehemiah, his cup-bearer, but a man of Jewish family, was ordered to proceed to Jerusalem, and, aided by Ezra and others, succeeded in secretly fortifying the city, notwithstauding the continuous opposition from Samaritans, Ammonites, and Arabians. The strictest observance of the "written law," even of those of its parts which had been for some reason or other disregarded, was now rigorously enforced, and many "oral ordinances" were put into practice, which do not seem to have been much heard of previously. The supreme spiritual authority was vested in a society of pious and pre-eminently learned men, founded by Ezra, out of which grew the "great synagogue," of whose existence modern scholars no longer see any reason to doubt. The compilation and transcription of the sacred records began, periodical public readings and expoundings of the law were instituted, and the vast targumic, as well as the so-called rabbinical literature, generally dates—in its earliest beginnings—from this point. During the life of Nehemiah the breach between the Jews and Samaritans became final, by the erection on Mt. Gerizim (near Samaria) of a rival temple to that at Jerusalem, and the creation of a rival priesthood. For more than a hundred years the Jews lived quietly under the Persian yoke, too insignificant to excite any attention from the Greeks, then in the full meridian of their political and literary greatness; and scanty are the accounts which, as yet, have, out of the mazes of ancient Jewish literature, been brought to light, with respect to the inner intellectual life of the Jews during that period. That, although silent, it must have been extremely active and rich, is amply evidenced by the sudden appearance, immediately afterwards, of a vast number of literary productions.

Alexander the great, on his way to conquer the whole east, did not deem it necessary to storm Jerusalem. The inhabitants submitted, and he even deigned to have sacrifices offered on his behalf to the national god of his new subjects, a great number of whom, and of Samaritans, he carried away to Egypt (where Jews were supposed to have immigrated as early as the time of the last kings of Judah, and later under Artaxerxes Ochus), and peopled a third of his newly-founded city Alexandria with the Jewish captives. After him, Ptolemy the son of Lagos, surnamed *Soter*, one of Alexander's generals, who had become king of Egypt, invaded Syria, took Jerusalem (301 B.C.), and carried off 100,000 of its inhabitants, whom he forced to settle chiefly in Alexandria and Cyrene. The Egyptian (Alexandrian) "dispersion" (Golah)—destined to be of vastest importance in the development of Judaism and Christianity—gradually spread over the whole country, from the Libyan desert in the n., to the boundaries of Ethiopia in the s., over the Cyrenaica and part of Libya, and along the borders of the African coasts to the Mediterranean. They enjoyed equal rights with their fellow-subjects, both Egyptian and Greek, and were admitted to the highest dignities and offices: so that many further immigrants followed of their own free-will. The free development which was allowed them enabled them to reach, under Greek auspices, the highest eminence in science and art. In Greek strategy and Greek statesmanship, Greek learning and Greek refinement, they were ready and brilliant disciples; even their artisans and workmen were sent for by distant countries. From the number of Judeo-Greek fragments, historical, didactic, epic, etc. (by Demetrios, Malchos, Eupolemos, Artapan, Aristæos, Jason, Ezechielos, Philo, Theodot, etc.), which have survived, we may easily conclude what an immense literature must have sprung up here within a few centuries in the midst of the Judeo-Egyptian community. To this is owing, likewise, the Greek translation of the Bible, known as the Septuagint (q.v.), which, in its turn, while it estranged the people more and more from the language of their fathers, the Hebrew, gave rise to a vast pseudo-epigraphical and apocryphal literature (Orphica, Sibyllines, Pseudophoclea; poems by Linus, Homer, Hesiod; additions to Esther, Ezra, the Maccabees, Book of Wisdom, Baruch, Jeremiah, Susannah, etc.), not to mention the peculiar Greco-Jewish philosophy, which sprang from a mixture of Hellenism and Orientalism, of which we have spoken at some length in the article GNOSTICS.

For a hundred years Judea herself remained under Egyptian rule. During the reigns of the first three Ptolemies, Soter, Philadelphus, and Euergetes, it prospered, but after the accession of Ptolemy Philopater, a change for the worse came over the fortunes of the Jews. Their fate became harder still under his son, Antiochus Epiphanes, or Epimanes (the madman). With every means a cruel and foolhardy policy could devise, this king outraged the religious feelings of the nation, and endeavored to tear out every root of the sacred creed. At different periods he sent his generals to Jerusalem to pillage and burn, and to force the Jews into the Greek religion. The temple at Jerusalem was finally dedicated to Jupiter Olympius; idol altars were built in every village, and the people forced to offer swine daily. Some yielded, many fled, the greater part preferred martyrdom in some shape or other.

At this juncture the heroic family of Matathia, a priest of the house of the Asmoneans, rose, together with a few patriots, against the immense power of the Syrians. The national cause quickly gathered strength, and after the death of Matathia (166), Judas Maccabæus (q.v.) led the national hosts to victory against the Syrians. After his

death (161 B.C.), his brothers Jonathan and Simon completed the work of deliverance, and reinstituted the Sanhedrim (145 B.C.). During their rule, alliances were twice formed with the Romans, and the country once more began to prosper. Under Simon more especially, Syrian rule became a mere shadow: his was an almost absolute power. So much so, that in the year 170 of the Seleucidian era (142 B.C.), a new Jewish era was commenced, and public documents bore date, "In the first year of Simon, high-priest and chief of the Jews." Simon's son, John Hyrcanus, after a brief period of vassalage to the Syrians, extended his authority over Samaria, Galilee, and Idumea—his grand triumph, in the eyes of his countrymen, being the destruction of the Samaritan temple on Mt. Gerizim (129 B.C.); but in reality his most surprising success was the subjugation of the Idumeans, and their conversion to the Jewish religion. His son, Aristobulus, added Iturea—a district at the base of the Anti-Libanus—to his dominions, but died, after a short reign, of remorse for the murder of his mother, Salome Alexandra, to whom the secular dominion had been bequeathed by Hyrcanus, but whom Aristobulus had cast into prison, and caused there to die of hunger. The son who succeeded him was Alexander Jannæus. Constantly fighting, and generally beaten, this king yet, strange to say, contrived to enlarge his territories; restless and enterprising as he was cruel and sanguinary, he gave his opponents no rest, and his opponents were all his neighbors in turn, excepting Cleopatra, queen of Egypt. Attached to the Sadducees (q.v.), like his father, and probably something of a pagan, he was disliked by the mass of his countrymen, and a civil war of six years' duration ensued. After a brief period of peace, he died (78 B.C.), recommending, however, his wife, Alexandra, to throw herself into the arms of the very party who had thwarted him all his life, the Pharisees (q.v.), as the best way of retaining her authority. This she did; and governed, on the whole, prudently for nine years. The Pharisaic party, however, abused the power which fell into their hands, and a reaction took place. Aristobulus, youngest son of the queen, and a prince of great spirit, placed himself at the head of the movement, marched to Jerusalem, took possession of the city, and ejected his elder brother, Hyrcanus II., from the sovereignty. Afterwards, however, the latter, at the instigation of Antipater, the Idumean, and father of Herod the great, fled to Aretas, king of northern Arabia, who was induced, by the promise of a cession of the territory which had been acquired by Alexander Jannæus, to take up arms on his behalf. This led to the interference of the Romans, who were then fighting both in Syria and Armenia. After several vicissitudes, Jerusalem was captured (63 B.C.) by Pompey, who had decided in favor of Hyrcanus, and Judæa made dependent on the Roman province of Syria, and Hyrcanus appointed ethnarch and high-priest. Aristobul, however, with his two sons, Alexander and Antigonus, and two daughters, were carried captive to Rome.

In 54 B.C., Licinius Crassus plundered the temple which Pompey had piously spared; his ill-gotten gains are said to have amounted to £2,000,000. He fell shortly afterwards in the war against the Parthians, and his companion, Cassius Longius, succeeded in completely routing Aristobul's army.

Meanwhile, the war between Cæsar and Pompey broke out. In Syria, the partisans of the latter were numerous, and contrived to poison Aristobulus, and execute his son Alexander, who were Cæsareans (49 B.C.). After the death of Pompey, however, things changed; and Hyrcanus, or rather Antipater the Idumean (who was both his minister and master), saw the necessity of securing the favor of Cæsar. With Hyrcanus II. ended the line of *Asmonean* princes: they exercised (nominally) supreme authority both in the civil and religious affairs of Palestine, i.e., they were both sovereigns and high-priests; but, as we have already indicated, the real religious authority had passed into the hands of the priesthood, and especially of the Sanhedrim (q.v.). The *Idumean* dynasty, which succeeded the Asmonean, virtually commenced with Antipater, who prevailed on Cæsar to restrict Hyrcanus to the high-priesthood, and obtained for himself the office of procurator of Judæa, while his eldest son Phazael was appointed governor of Jerusalem, and his younger son Herod governor of Galilee. The Jewish or national party took the alarm at this sudden increase of Idumean power; strife ensued; and ultimately Antipater perished by poison; but Herod, by the assistance of the Romans, finally entered Jerusalem in triumph (37 B.C.), caused Antigonus, the last male representative of the Asmonean line, and his most dangerous enemy, to be put to death, and commenced the difficult task of governing a people who were growing more and more unruly every day. The political events which occurred during the government of the Herods are briefly touched upon under the heads Herod (q.v.), Agrippa (q.v.), and Antipater (q.v.).

After Herod's death (3 B.C.), Archelaus, one of his sons, ruled Judæa and Samaria; but his arbitrariness, and still more his constant attacks upon religion, made him hateful to the people; and Augustus, listening to their just complaints, deprived him of his power, and banished him to Vienne (6 A.D.). Judea was now thrown together with Syria, and was ruled by Roman governors.

In the year 38 A.D., the emperor Caligula issued an edict ordering divine honors to be paid to himself. Everywhere throughout the Roman dominions the Jews refused to obey. At Alexandria a frightful massacre took place, and for a moment it seemed as if the whole of the inhabitants of Judea, too, were doomed to perish: but Herod Agrippa I. (q.v.), tetrarch of northern Palestine, and a friend of Caligula dissuaded the

emperor from carrying out his barbarous design. About the same time, the Babylonian Jews became involved in a quarrel with the Parthians, and were slaughtered in vast numbers. The accession of Claudius, on the assassination of Caligula, seemed, however, the dawn of a brighter day for them. Herod Agrippa, a loyal friend and favorite of the new emperor, obtained anew the dominion over all the parts once ruled by his grandfather Herod, and many privileges were through his influence granted to his Jewish subjects, and even to foreign Jews. They received the rights of Roman citizenship (41 A.D.), and Herod even tried to conciliate their religious prejudices by the strictness with which he observed their law (a circumstance, we may say, in passing, that will account for his persecution of the Christians); yet the national party remained malcontent, and in an almost permanent state of mutiny. After the death of Herod Agrippa I. (his son being but a youth of seventeen) the country was again subjected to Roman governors. The confusion soon became indescribable. The whole land was overrun with robbers and assassins, some of whom professed to be animated by religious motives (such as the Sicarii), while others were mere ruffianly freebooters and cut-throats; the antipathy between Jews and Samaritans waxed fiercer and fiercer, and the latter waylaid and murdered the orthodox Galileans as they went up to worship at Jerusalem; all sorts of impostors, fanatics, and pretenders to magic made their appearance; the priesthood was riven by dissensions; the hatred between the populace and the Roman soldiery (mostly of Græco-Syrian origin), and under the commands of cruel procurators, such as Albinius and Gessius Florus, increased; frightful portents (according to Josephus) appeared in the heavens, until, in 66 A.D., in spite of all the precautionary efforts taken by Agrippa, the party of Zealots, i.e., the Sicarii or Assassins, burst into open rebellion, which, after a horrible carnage (Josephus calculates the number killed at 1,356,460), was terminated (70 A.D.) by the conquest of Jerusalem by Titus, the destruction of the temple, and the massacre and banishment of hundreds of thousands of the unhappy people, who were scattered among their brethren in all parts of the world. The defense of Jerusalem (as narrated by Josephus) is one of the most magnificent and melancholy examples of mingled heroism and insanity that the world affords. Still, very considerable numbers were allowed to remain in their native country, and for the next thirty years, although both hated and treated with rigor, they appear, on the whole, to have flourished. The emperor Nerva was as lenient to them as to the rest of his subjects; but as soon as they had attained some measure of political vitality, their turbulent and fanatical spirit broke out anew. Their last attempts to throw off the Roman yoke, at Cyrene (115 A.D.), Cyprus (116 A.D.), Mesopotamia (118 A.D.), and Palestine, under Bar-Cochba (q.v.), (130 A.D.), were defeated after enormous and almost incredible butchery. The suppression of Bar-Cochba's insurrection (135 A.D.) marks the final desolation of Judea, and the dispersion of its inhabitants. Talmud and Midrash (especially *Midrash Echa*) appear to exhaust even eastern extravagance in describing what followed the capture of Bither—the great stronghold of the Jews. The whole of Judea was made like a desert, about 985 towns and villages lay in ashes, 50 fortresses were razed to the ground: the name of Jerusalem itself was changed into *Ælia Capitolina*, and a heathen colony settled in the city, from entering which every Jew was strictly debarred. The hardships to which the unfortunate race were subjected were again alleviated in the reign of Antoninus Pius, whom the Jewish writers represent as secretly attached to their religion (see Jost's *Geschichte der Israeliten*, etc.), and better times seemed in store for the homeless exiles. Alexander Severus also placed Abraham on the same divine level as he did Christ, and obtained from the grateful people the title of "father of the synagogue." Heliogabalus, among his many senseless whims, patronized various Jewish practices, such as circumcision and abstinence from swine's flesh; and generally speaking, from the close of the 2d c. till the establishment of Christianity under Constantine (330 A.D.), when their hopes were once more dashed to the ground, the Jews of the Roman empire appear to have thriven astonishingly. In this period falls the redaction of the chief code and basis of the "Oral Law," the Mishna (q.v.) completed by Jehuda *Hanassi* (the prince), or *Hakkadosh* (the saint), president of the great school at Tiberias (220); upon which code were grafted subsequently the two gigantic commentaries or complements, the Palestinian and the Babylonian Gemaras (q.v.). The Babylonian Jews were even more fortunate than their western brethren, though they did not perhaps attain the meridian of their prosperity till the revival of the Persian, on the downfall of the Parthian empire. Their leader was called "The Prince of the Captivity" (*Resh Gelutha*), and was chosen from among those held to be descended from the house of David. He lived in great splendor, assumed among his own people the style of a monarch (though extremely submissive to the Parthian or Persian ruler), had a bodyguard, counselors, cup-bearers, etc.; his subjects were, many of them, at least, extremely wealthy, and pursued all sorts of industrial occupations. They were merchants, bankers, artisans, husbandmen, and shepherds; and in particular had the reputation of being the best weavers of the then famous Babylonian garments. In fact, his government was quite an *imperium in imperio*, and possessed a thoroughly sacerdotal or at least theocratic character. The reputation for learning of the Babylonian schools, Nahardea, Sura, and Pumbeditha, was very great. What was their condition at this time further east we cannot tell, but it seems quite certain that they had obtained a footing in China, if not before the time of Christ, at least during the 1st century. They were first discovered

by the Jesuit missionaries of the 17th century. They did not appear ever to have heard of Christ, but they possessed the book of Ezra, and retained, on the whole, a very decided nationalism of creed and character. From their language, it was inferred that they had come originally from Persia. At one time, they would appear to have been highly honored in China, and to have held the highest civil and military offices.

Reverting to Europe the ascendency of Christianity, as we have already said, was baneful to the Jews. Imperial edicts and ecclesiastical decrees vied with each other in the rigor of their intolerance towards this unhappy people. They were prohibited from making converts, from invoking (in Spain at least) the divine blessing on the country, from marrying Christian women or holding Christian slaves; they were burdened with heavy taxes; yet no persecution apparently could destroy the immortal race. About this time they are found in large numbers in Illyria, Italy, Spain, Minorca, Gaul, and the Roman towns on the Rhine; they are agriculturists, traders, and artisans; they hold land; their services, in fact, cannot be dispensed with; Constantine, during whose reign a fierce revolution, incited by his co-regent, Gallus, broke out among the Arians and Jews (353), terms them, in a public document, "that most hateful of all people;" yet in spite of this, they fill important civil and military situations, have special courts of justice, and exercise the influence that springs from the possession of wealth and knowledge. The brief rule of Julian the apostate even shed a momentary gleam of splendor over their destinies, and the transport which they manifested on obtaining his permission to rebuild the temple at Jerusalem, is one of the most sublime spectacles in their history. The death of this emperor, however, frustrated their labors, and the rapid increase of ecclesiastical power was, of course, hurtful to them in a variety of ways, although the emperors now began, in the decline of their authority, to protect them as far as they could. In 418 A.D. they were excluded from the military service; and in 429 A.D. the patriarchate at Tiberias was abolished. After the fall of the West Roman empire their fortunes were different in different countries. In Italy, Sicily, and Sardinia they were for a time almost unmolested; in the Byzantine empire they suffered many oppressions; while in the 6th and 7th c., the Franks and Spanish Visigoths inflicted on them frightful persecutions

The sudden volcanic outburst of Mohammedanism in the Arabian peninsula was at first disastrous to the Jews in that part of the world. For several centuries, a Jewish kingdom had existed in the s.w. of Arabia. It was called Himyaritis or Homeritis, and was in a flourishing condition 120 years before Christ. About 230 A.D., the Jewish religion even mounted the throne of Yemen. Twice, however (by the Ethiopian kings, Aidog and Ez-Baha), were the Jewish kings driven from it, and the Christian religion was introduced in that part in 530 A.D. At first Jewish tribes around Mecca and Medina entertained opinions favorable to Mohammed as an Arabian chief, but when Islam began to threaten their own faith, and even existence, they rose in arms against its founder. Mohammed proved the stronger: he subdued the Chaibar tribes in 627 A.D., and the Arabian Jews were finally dispossessed of their territories, and removed to Syria. The spread of Mohammedanism through Asiatic Turkey, Persia, Egypt, Africa, and the s. of Spain was, nevertheless, on the whole advantageous to the Jews. Excepting accidental persecutions, such as those in Mauritania (790 A.D.) and in Egypt (1010 A.D.), they enjoyed, under the caliphs and Arabian princes, comparative peace. In Moorish Spain their numbers greatly increased, and they became famous for their learning as well as for trade. They were counselors, secretaries, astrologers, or physicians to the Moorish rulers; and this period may well be considered the golden age of Jewish literature. Poets, orators, philosophers of highest eminence arose, and not isolated, but in considerable numbers; and it is a well-established fact that to them is chiefly due—through the Arab medium—the preservation and subsequent spreading of ancient classical literature, more epecially philosophy, in Europe. There are some medical works belonging to ancient Greece even now extant only in their Arabic translations, the originals being probably lost forever. Different from their fate under Moslem rule was that which they had to endure in Christendom about this period. Only few and far between were those Christian monarchs who rose above the barbarism of the churches. About the beginning of the 11th c. the Byzantine emperor, Basil II., renewed the persecution; from quite different causes the same thing had already begun in Babylonia, where the caliphate had passed into the hands of rulers hostile to the Jews; and before the close of the 11th c. the Prince of the Captivity had perished on the scaffold, the schools were closed, the best of the community had fled to Spain, and those that remained were reduced to an abject condition from which they have never risen. In Italy their position was made tolerable by considerable pecuniary sacrifices. Here and there, at intervals, a spirit of Christian intolerance might break out, but they enjoyed for the most part the protection of the popes.

More favorable was their lot during the 8th and 9th centuries in France, especially in Paris, Lyons, Languedoc, and Provence. At the court of *Louis le Débonnaire* they were actually all-powerful. After 877 A.D., however, when the weak Carlovingians had begun to rule, and the church was advancing with imperious strides, a melancholy change ensued—kings, bishops, feudal barons, and even the municipalities, all joined in a carnival of persecution. From the 11th to the 14th c. their history is a successive series of massacres. All manner of wild stories were circulated against them: it was said

that they were wont to steal the host, and to contemptuously stick it through and through; to inveigle Christian children into their houses, and murder them; to poison wells, etc. They were also hated for their excessive usury, though there can be no doubt that more blame is attachable to those whose tyranny, by depriving them of the right to possess land, had compressed their activity into the narrower channels of traffic. Occasionally, however, their debtors, high and low, had recourse to what they called Christian religion as a very easy means of getting rid of their obligations. Thus, Philippe Auguste, under whose rule the Jews seem to have held mortgages of enormous value on the estates of church and state dignitaries, simply confiscated the debts due to them, forced them to surrender the pledges in their possession, seized their goods, and banished them from France; but the decree appears to have taken effect chiefly in the n.; yet in less than 20 years the same proud but wasteful monarch was glad to let them come back and take up their abode in Paris. Louis IX., who was a very pious prince, among other religious acts, canceled a third of the claims which the Jews had against his subjects, "for the benefit of his soul." An edict was also issued for the seizure and destruction of their sacred books; and we are told that, at Paris, 24 carts filled with copies of the *Talmud*, etc., were consigned to the flames. In the reign of Philippe the fair they were again expelled from France (1306 A.D.) with the usual accompaniments of cruelty; but the state of the royal finances rendered it necessary, in little more than a dozen years, to recall them; and they were allowed to enforce payment of the debts due to them, on condition that two-thirds of the whole should be given up to the king! But a religious epidemic, known as the rising of the shepherds, having seized the common people in Languedoc and the central regions of France (1321 A.D.), they signalized themselves by horrible massacres of the detested race; so horrible, indeed, that in one place, Verdun, on the Garonne, the Jews, in the madness of their agony, threw down their children to the *Christian* mob, from the tower in which they were gathered, hoping, but in vain, to appease the demoniacal fury of their assailants. In the following year the plague broke out, and the wildest crimes were laid to their charge. One shudders to read of what followed; in whole provinces every Jew was burned. *At Chinon a deep ditch was dug, an enormous pile raised, and* 160 *of both sexes burned together!* Yet Christianity never produced more resolute martyrs; as they sprung into the place of torment, they sang hymns as though they were going to a wedding. Finally, in 1395, they were indefinitely banished from the middle of France.

Their first appearance in England dates from the period of the Saxons. They are mentioned in the ecclesiastical constitutions of Egbright, archbishop of York, 740 A.D.; they are also named in a charter to the monks of Croyland, 833 A.D. William the conqueror and his son, William Rufus, favored them; the latter, on the occasion of a public debate between them and the Christians, even swore with humorous profanity that if the rabbins beat the bishops, "by the face of St. Luke" he would turn a Jew himself. The same reckless monarch carried his contempt for the religious institutions of his kingdom so far that he actually farmed out the vacant bishoprics to the Jews; and at Oxford, even then a seat of learning, they possessed three halls—Lombard hall, Moses hall, and Jacob hall, where Hebrew was taught to Christians as well as to the youths of their own persuasion. As they grew in wealth they grew in unpopularity. On the day of the coronation of Richard the lion heart (1189 A.D.), some foreign Jews, being perceived to witness the spectacle, from which their nation had been strictly excluded, a popular commotion against them broke out in London; their houses were pillaged and burned; and though sir Richard Glanville, the chief-justiciary of the realm, acting under the orders of the indignant king, partially succeeded in arresting the havoc, and even in bringing some of the mob to justice (three were hanged), yet the barbarous bigotry of priests and people prevented anything like just or salutary punishment. Similar scenes were witnessed at Norwich, Edmundsbury, Stamford, and York; in the last of these towns, most of the Jews preferred voluntary martyrdom (*Kiddush Hashem*) in the synagogue to forced baptism. When Richard returned from Palestine their prospects brightened a little; though still treated with great rigor, yet their lives and wealth were protected—for a consideration! John *Lackland* at first covered them with honor, but the popular and priestly hatred only became the stronger; and on a sudden, the vacillating and unprincipled king turned round on his protégés, after they had accumulated great wealth, and imprisoned, maltreated, and plundered them in all parts of the country. Under Henry III. they were mulcted enormously. Accused of clipping the coin of the realm, they had, as a penalty, to pay into the royal exchequer (1230 A.D.) a third of their movable property. To this reign belongs the now exploded story of the crucifixion of the Christian boy, *Hugh of Lincoln*. The accession of Edward did not mitigate their misery; some efforts, indeed, were made to induce them to give up their profession of usury, as was also done in France and elsewhere during the same period, but the fact is, that they were so heavily taxed by the sovereigns or governments of Christendom, and at the same time debarred from almost every other trade or occupation—partly by special decrees, partly by the vulgar prejudice—that they could not afford to prosecute ordinary avocations. The attempt made by the Dominican friars to convert them, of course, failed utterly; and in 1253 the Jews—no longer able to withstand the constant hardships to which they were subjected in person and property—begged of their own accord to be allowed to leave the country. Richard of Cornwall, however, persuaded

them to stay. Ultimately, in 1290 A.D., they were driven from the shores of England, pursued by the execrations of the infuriated rabble, and leaving in the hands of the king all their property, debts, obligations, and mortgages. They emigrated for the most part to France and Germany. Their number is estimated at about 16,000.

In Germany they were looked upon as the special property of the sovereign, who bought and sold them, and were designated his *Kammerknechte* ("chamber-servants"). As already said, they made their appearance in that region almost as early as the time of Constantine. About the 8th c. they are found in all the Rhenish towns; in the 10th c., in Saxony and Bohemia; in the 11th, in Swabia, Franconia, and Vienna; and in the 12th, in Brandenburg and Silesia. The same sort of treatment befell them in the empire as elsewhere; they had to pay all manner of iniquitous taxes—body-tax, capitation-tax, trade-taxes, coronation-tax, and to present a multitude of gifts, to mollify the avarice or supply the necessities of emperors, princes, and barons. A raid against the Jew was a favorite pastime of a bankrupt noble in those days. The crusades kindled a spirit not in Germany only, however, but through all Christendom, hostile to the "enemies of Christ." Treves, Metz, Cologne, Mainz, Worms, Spires, Strasburg, and other cities, were deluged with the blood of the "unbelievers." At such epochs, the passions of the populace and of the lower clergy could not be restrained. The word *hep* (said to be the initials of *Hierosolyma est perdita*, Jerusalem is taken) throughout all the cities of the empire became the signal for massacre, and if an insensate monk sounded it along the streets, it threw the rabble into paroxysms of murderous rage. The Jews were expelled—after being plundered and maltreated—from Vienna (1196 A.D.), Mecklenburg (1225 A.D.), Breslau (1226 A.D.), Brandenburg (1243 A.D.), Frankfort (1241 A.D.), Munich (1285 A.D.), Nuremberg (1390 A.D.), Prague (1391 A.D.), and Ratisbon (1476 A.D.). The "Black Death," in particular, occasioned a great and widespread persecution (1348–50 A.D.). They were murdered and burned by thousands, and many even sought death amidst the conflagrations of their synagogues. The race almost disappeared from Germany; only, however, to return, for their services were indispensable. Only here and there, however, they possessed the rights of citizens, or were allowed to hold unmovable property; in general, they were permitted to prosecute only commerce and usury, and the law turned on them its harshest aspect. Repeatedly, too, the emperors gratified at once their piety and their greed by canceling their pecuniary claims. In many places, they were compelled to live in certain parts of the town, known as the *Judenstrasse* (Jews' streets).

Switzerland, whither they came at a comparatively late period, commenced to persecute them about the middle of the 14th century. In the course of the 15th c. they were expelled from Schaffhausen, Zürich, Geneva, Thurgau, and other places.—Their treatment was more humane in Poland and Lithuania. As early as 1264 A.D. they enjoyed in these countries certain important privileges. Favored by Casimir III. their numbers were swelled, after 1348 A.D., by fugitives from Germany and Switzerland.—Russia and Hungary, like most other countries of Christendom during the middle ages, received, persecuted, and banished them.

In Spain the condition of the Jews was long highly favorable. The horrible persecutions of the Gothic princes in the 6th and 7th centuries made it, of course, absolutely inevitable that the first gleam of a Moorish scimiter on the coast would turn them into allies of the invaders. During the whole of the brilliant period of Moorish rule in the Peninsula they enjoyed, indeed, what must have seemed to them, in comparison with their common fate, a sort of elysian life. They were almost on terms of equality with their Mohammedan masters, rivaled them in civilization and letters, and probably surpassed them in wealth. The Spanish Jews were consequently of a much higher type than their brethren in other parts of Europe. They were not reduced to the one degrading occupation of usury, though they followed that too; on the contrary they were husbandmen, landed proprietors, physicians, financial administrators, etc.; they enjoyed special privileges, and had courts of justice for themselves. Nor was this state of things confined to those portions of Spain under the sovereignty of the Moors: the Christian monarchs of the north and middle gradually came to appreciate the value of their services, and we find them for a time protected and encouraged by the rulers of Aragon and Castile. But the extravagance and consequent poverty of the nobles, as well as the increasing power of the priesthood, ultimately brought about a disastrous change. The estates of the nobles and (it is also believed) those attached to the cathedrals and churches, were in many cases mortgaged to the Jews; hence it was not difficult for "conscience" to get up a persecution, when goaded to its "duty" by the pressure of want and shame. Gradually, the Jews were deprived of the privilege of living where they pleased; their rights were diminished, and their taxes augmented. In Seville, Cordova, Toledo, Valencia, Catalonia, and the island of Majorca, outbursts of priestly and popular violence took place (1391–92 A.D.); immense numbers were murdered, and wholesale theft was perpetrated by the religious rabble. Escape was possible only through flight to Africa, or by accepting baptism at the point of the sword. The number of these enforced converts to Christianity is reckoned at 200,000. The fate of the Jews in Spain during the 15th c., however, beggars description. Persecution, violent conversion, massacre, the tortures of the inquisition—we read of nothing but these! Thousands were burned alive. "In one year, 280 were burned in Seville alone." Sometimes the popes, and even the

nobles, shuddered at the fiendish zeal of the inquisitors, and tried to mitigate it, but in vain. At length the hour of final horror came. In 1492 A.D. Ferdinand and Isabella issued an edict for the expulsion, within four months, of all who refused to become Christians, with the strict inhibition to take neither gold nor silver out of the country. The Jews offered an enormous sum for its revocation, and for a moment the sovereigns hesitated; but Torquemada, the Dominican inquisitor-general, dared to compare his royal master and mistress to Judas; they shrank from the awful accusation; and the ruin of the most industrious, the most thriving, the most peaceable, and the most learned of their subjects—and consequently of Spain herself—became irremediable. This is perhaps the grandest and most melancholy hour in their modern history. It is considered by themselves as great a calamity as the destruction of Jerusalem. 300,000 (some even give the numbers at 650,000 or 800,000) resolved to abandon the country, which a residence of seven centuries had made almost a second Judea to them. The incidents that marked their departure are heart-rending Almost every land was shut against them. Some, however, ventured in France; others into Italy, Turkey, and Morocco, in the last of which countries they suffered the most frightful privations. Of the 80,000 who obtained an entrance into Portugal on payment of eight gold pennies a head, but only for eight months, to enable them to obtain means of departure to other countries, many lingered after the expiry of the appointed time, and the poorer were sold as slaves. In 1495 A.D. king Emanuel commanded them to quit his territories, but just at the same time issued a secret order that all Jewish children under 14 years of age should be torn from their mothers, retained in Portugal, and brought up as Christians. Agony drove the Jewish mothers into madness: they destroyed their children with their own hands, and threw them into wells and rivers, to prevent them from falling into the hands of their persecutors. The miseries of those who embraced Christianity, but who, for the most part, secretly adhered to their old faith (*Onssim*, *Anussim*—"yielding to violence, forced ones"), were hardly less dreadful, and it was far on in the 17th c. before persecution ceased. *Autos-da-fé* of suspected converts happened as late as 1655 A.D.

The wanderers appear to have met with much better treatment in Italy and Turkey than anywhere else. During the 15th and 16th centuries they are to be found—except at intervals, when persecution applied its scourge—in almost every city of Italy; pursuing various kinds of traffic (nearly the whole trade of the Levant, for instance, was in their hands), but chiefly engaged in money-lending, in which they rivaled the great Lombard bankers. Abrabanel, perhaps the most eminent Jewish scholar and divine of his day, rose to be confidential adviser to the king of Naples. In Turkey they were held in higher estimation than the conquered Greeks; the latter were termed *teshir* (slaves), but the Jews, *monsaphir* (visitors); they were allowed to reopen their schools, to establish synagogues, and to settle in all the commercial towns of the Levant.

The invention of printing, the revival of learning, and the reformation are generally asserted to have been beneficial to the Jews, but this can be regarded as true only in a certain sense. When the Jews began to use the presses at their earliest stage for their own literature, sacred and otherwise, the emperor Maximilian was urged—chiefly by converts—to order all Hebrew writings to be committed to the flames; and but for the strenuous exertions of Reuchlin (q.v.), ignorance, treachery, and bigotry might have secured a despicable triumph. Luther, in the earlier part of his career, at least, looked with no unfavorable eye on the adoption of violent means for their conversion; and, on the other hand, we find at least one distinguished Roman Catholic, pope Sextus V., animated by a far more wise and kindly spirit towards them than any Protestant prince of his time. In 1588 he abolished all the persecuting statutes of his predecessors, allowed them to settle and trade in every city of his dominions, to enjoy the free exercise of their religion, and, in respect to the administration of justice and taxation, placed them on a footing with the rest of his subjects. That the reformation itself had nothing to do with subsequent ameliorations in the condition of the Jews, is only too plain from the fact that in many parts of Germany, Protestant as well as Catholic, their lot became actually harder than before. They were driven out of Bavaria (1553 A.D.), out of Brandenburg (1573 A.D.), and similar treatment befell them elsewhere. They also excited numerous popular tumults (as late even as 1730 A.D. in the Protestant city of Hamburg); and, in fact, during the whole of the 17th and the first part of the 18th c. the hardships inflicted on them by the German governments positively became more and more grievous. What really caused the change in their favor was the great uprising of human reason that marked the middle of the 18th century. Among the writers who distinguished themselves in Germany by pleading the cause of the Jews, we may specially mention Lessing (q.v.), Mendelssohn (q.v.), and Dohm.

Holland, as we know, was one of the first countries in modern times to rise out of the barbarism of the middle ages. Its active, energetic, intelligent inhabitants appreciated the business qualifications of the Jews, and as early as 1603 A.D., permitted them to settle and trade, though they did not acquire the rights of citizenship till 1796 A.D. In England, the edict of Edward I. remained in force for more than 300 years; and the first attempt made by the Jews to obtain a legal recognition in that country was during the protectorate of Cromwell in 1655 A.D. Cromwell himself was favorable to their admission; so were the lawyers; but the nation generally, and particularly the emphatically religious portion of it, were strongly hostile to such a proceeding; and the weari-

some, controversial jangling of the divines appointed to consider the question, prevented anything from being done till the reign of Charles II., who, standing much and frequently in need of their services, permitted them quietly to settle in the island. In 1723 A.D. they acquired the right to possess land; in 1753 A.D. they obtained the right of naturalization. Since 1830 civic corporations, since 1833 the profession of advocates, and since 1845 the office of alderman and of lord-mayor have been opened to them. The last and crowning triumph of the principle of toleration was achieved in 1858 by the admission of Jews into parliament.

Some of the relics of that mighty host of exiles that left Spain and Portugal found their way into France, where they long lingered in a miserable condition. In 1550 A.D. they were received into Bayonne and Bordeaux; they were also to be found in considerable numbers in Avignon, Lorraine, and Alsace. In 1784 the capitation-tax was abolished. In 1790, while the French revolution was still in its pristine vigor, and animated by a sincere humanitarianism, the Jews presented a petition to the national representatives claiming equal rights as citizens. Mirabeau was among their advocates, and their cause could not, therefore, be unsuccessful. From this time their technical designation in France has been *Israelites*. In 1806 the emperor Napoleon summoned a "Sanhedrim" of Jews to meet at Paris, to whom a variety of questions were put, mainly with a view to test their fitness for being French citizens. Their answers were satisfactory, and they were allowed to reorganize their religious institutions in the most elaborate manner. Since then, no material change has taken place in the laws regarding them; and they are since then found not only in the highest offices of the civil administration—very frequently in the ministry (e.g., Crémieux, Goudchaux, Fould)—but they also fill some of the chief places in the army and navy. We may add here that their surpassing bravery in the field has been the subject of frequent remark, more especially since among the vices with which a brutal prejudice loved to brand them, in spite of all historical evidence, was also that of cowardice.—In Denmark, since 1814 A.D., they have been on a footing of equality as citizens with native Danes.—In Sweden they did not obtain admission till 1776 A.D., and then only into Stockholm and three other towns. Citizenship is still conferred as a favor.—Norway forbade them to touch its soil till 1860 A.D.—Admitted into Russia proper by Peter the great, they were expelled—to the number of 35,000—by the empress Elizabeth in 1743. Readmitted by the empress Catharine II., they were further protected by the emperor Alexander I., who in 1805 and 1809 issued decrees, insuring them full liberty of trade and commerce; but of the liberties which he conferred upon them they were deprived by the late emperor, Nicholas. Since 1835 a scheme of gradual emancipation has been under contemplation.—Poland, however, has become their principal residence. There they are more numerous than in any other part of the world. They owed their first humane reception in the 14th c. to the love which king Casimir the great bore for a Jewish mistress. For many years the whole trade of the country was in their hands. During the 17th and the greater part of the 18th c., however, they were much persecuted, and sank into a state of great ignorance, and even poverty; but education—in spite of the severity and barbarism of Russian intolerance—has, since the French revolution, made progress among them.—Frederick the great, king of Prussia, showed himself singularly harsh towards the Jews; in fact, his legislation, it has been said, almost throws us back into the middle ages. All manner of iniquitous and ridiculous taxes were laid upon them; only a certain number were allowed to reside in the country, and these were prohibited both from the most honorable and the most lucrative employments. This shameful state of matters was ended by the Prussian edict of toleration (1812 A.D.), by which Jews were placed almost in an equal position as citizens with other Prussians. Since then the tendency, on the whole, had been to enlarge their "liberties"—until the revolution of 1848 finally gained them their full emancipation, although, owing to the subsequent reaction, it was slowly carried out.—In the smaller German states their full rights have likewise—gradually and grudgingly—been conceded to them at last. The first German national assembly held in Frankfort in 1848 contained many prominent Jewish members. Lasker, the leader of the national liberal party in the Reichstag of the new German empire, is a Jew.—In Austria the emperor Joseph II. distinguished himself by passing an act of toleration, 1782 A.D. This act was extraordinarily liberal in its provisions for the Jews. Not till 1860, however (and even then under certain restrictions), did they acquire the right to possess land.—In Hungary and Transylvania they have long enjoyed important privileges, and have been protected by the nobility. As a consequence, in the late Hungarian insurrection, they were patriotic to a man.—Spain began to tolerate them again in 1837 A.D., and they can follow trade or agriculture like other Spaniards; but few Jews have as yet cared to venture back to a land that fills them with the most mournful recollections.—Portugal, where they enjoy no civic rights, has only a few German Jews.—Switzerland long treated them harshly, and only of late years have a few cantons taken a step in the right direction

In other countries their condition must be merely referred to. In Turkey they are very numerous, and have thriven in spite of the exactions of pashas, the insolence of janizaries, and the miseries of war. The communities in Constantinople, Adrianople, Saloniki, Smyrna, Aleppo, and Damascus, are considerable; in Palestine, their ancient home, they are said to be rapidly increasing, but they are still, in spite of the many

efforts on the part of their European brothers to ameliorate their condition, very poor. Their numbers in Arabia are not very large, yet they enjoy some independence. Those in Persia have sunk into ignorance through oppression, yet it is touching to find that they are not hopeless. "Heavy," they say, "is our slavery; anxiously we wait for redemption." They exist in Afghanistan, and carry on a trade between Cabul and China; in India and Cochin-China, where they are both agriculturists and artisans; in Surinam there is a flourishing colony; in Bokhara, where they possess equal rights with the other inhabitants, and are skilled in the manufacture of silks and metals; in Tartary and China, where, however, they are very insignificant both in numbers and position. They are also found all along the North African coast, where, indeed, they have had communities for perhaps more than a thousand years, which were largely reinforced in consequence of the great Spanish persecutions. They are numerous in Fez and Morocco, though they are not always free from the perils of Mohammedan fanaticism. In Egypt and Nubia they are few; in Abyssinia, more numerous; and it is ascertained that they have even made their way into the heart of Africa; they exist in Sudan, and are also found further south. America, too, has invited their spirit of enterprise. In the United States, as in Great Britain, they enjoy absolute liberty. They have been in Brazil since 1625, and in Cayenne since 1639, and are also settled in some parts of the West Indies.

The entire number of Jews in the world is reckoned variously between 3,500,000 and 15,000,000. A recent estimate gives their number at about 7,000,000, of which upwards of 5,500,000 are assigned to Europe ; about 750,000 to Asia ; about 750,000 to Africa, and about 300,000 to America. There are in Germany, inclusive of the whole of Austria and Prussia, about 2,150,000, of whom 1,500,000 are in Austria, and 650,000 in Prussia. According to the Russian census of 1870, the number of Jews in European Russia was 2,759,811.

Language and Literature.—*Language.* Among the Semitic family of languages, the Hebrew (called in the Old Testament the speech of Canaan; in the later portions of the same book the speech of Judea; and first in the Chaldee targums the sacred language, or rather the language of the sanctuary and things connected with it—as the law [mishna], the prayers, etc.) is one of the oldest, and in regard to strength, refinement, and elaborate completeness of grammatical structure, one of the most remarkable. (Its chief characteristics will be found noticed under Semitic Languages.) Yet it is neither the oldest of Semitic dialects, nor, as was long believed, the first of all human languages. Once identical with the Phenician, it was adopted by Abraham and his family in Palestine. The peculiar religious and moral notions of the Hebrews could not but impress upon it by degrees a distinct character, and thus Hebrew became a distinct dialect. Although the sacred writings are the oldest Semitic works which we possess, there is yet, except a few archaisms, hardly any trace of the primitive state of the Hebrew language preserved in them; they belong to periods when it was nearly as fully formed and developed as in the time of the exile. The differences in style, manner, and idiom in the different books must rather be traced to the individualities of the various writers. In general, we distinguish two distinct periods—the golden age, up to the Babylonian exile, when, except a few Egyptian words, no foreign admixture mars the purity of the language; the second, from the exile downwards, when Persian and Aramaic elements had largely been introduced. As we find it in the Bible the Hebrew is a poor language enough; yet there is a sublime grandeur, and, in the provinces of religion and agriculture, also a richness, inherent in it which surpasses almost every ancient and modern language. It is hardly to be presumed, in the absence of distinct traces, that there should have been, within the small compass of Palestine, room for several dialects. The different pronunciations of the *shin* alluded to in Judges xii. must have been only a solitary peculiarity of the Ephraimites, as, at a later period, the Galileans, and also the inhabitants of Jerusalem, were known for their faulty pronunciation, as shown in several passages of the New Testament and the Talmud. The Hebrew character still universally employed in writing, and called *square*, Assyrian, or Babylonian character, first takes the place, at an uncertain period after the exile, of the older national alphabetic character, which was common in the age of Moses, and in any case, was similar to the old Phenician.

A grammatical treatment of Hebrew first commenced after the language ceased to be spoken by the people. The vocalization and accentuation of the text originated in the 6th and 7th centuries after the time of Christ (see Masora). The Jews made the first attempt at a system of grammar about the dawn of the 10th c., after the example of the Arabians, and originally even in the Arabian language. Rabbi Saadia Gaon (d. 942 A.D.), Jehuda Chajug (*circa* 1050 A.D.), Abraham-ben-Esra (*circa* 1150 A.D.), and David Kimchi (*circa* 1190–1200), are held in classic repute as grammarians. The Hebrew dictionary of the latter was long considered the best that had been executed. The founder of the study of Hebrew among Christians was the famous Johann Reuchlin (d. 1522 A.D.), who, however, like the grammarians of the next age, Buxtorf and others, strictly adhered to the Jewish tradition and method. A new era began when the study of the other members of the Semitic family of languages, the Syriac, the Arabic, and the Ethiopic, enlarged the Hebraist's field of view; the heralds of this era were the German scholars, Alb. Schultens (d. 1750) and Nik. W. Schröder (d. 1798), who sought to remedy the one-sided, defective method into which the so-called Dutch school fell by its

too exclusive regard for Arabic. Gesenius, especially, along with a comprehensive and due consideration of all the allied languages, devoted his attention to the critical observation and exposition of the individual grammatical facts, and a more just and harmonious explanation of them. Since then Ewald (q.v.), who treats the Hebrew language as an organism after the historico-genetic method, has carried the study still further, and in some measure superseded Gesenius. Ewald's *Grammatik der Hebr. Sprache* (Leip. 1844); Gesenius, *Hebräische Grammatik* (Leip. 1813); the 16th edition by Rödiger (Leip. 1851), are the best-known grammars. The most comprehensive Hebrew dictionary is that by Gesenius, entitled *Thesaurus Linguæ Hebraicæ* (Leip. 1829–42); the best of the smaller lexicons are Gesenius's *Hebr. und Chald. Handwörterbuch über das Alte Testament* (2 vols. Leip. 1810–12; 7th ed. 1868); Winer's *Lexicon Manuale Hebraicum et Chaldaicum* (Leip. 1828); and Fürst's *Hebr. und Chald. Handwörterbuch* (Leip. 1857–61).

Literature.—The extraordinary influence which the religion of the Hebrews has exercised on Christian and Mohammedan nations has given a universal significance to their ancient literature. In antiquity and credibility, in the religiousness of its form and the vigor of its poetry, it surpasses the literature of any other pre-Christian people, and thus constitutes both the most remarkable monument and the most authentic source of the early history and spiritual development of the human race. It is true, however, that only a comparatively scanty portion of it has come down to the present day, and even the contents of what *is* extant have by no means remained unaltered in the lapse of ages. It is quite certain that the Hebrews, in the earliest times, only engraved or cut out on stone, metal, or wood what is said to have been executed *in writing;* nor is there any trace of a material adapted for the record of lengthened compositions before the period of David, and even then the writing of books was still a matter of rare occurrence. Besides, several writings of the Hebrews, held to be of ancient date, are believed to betray a later origin than is assigned to them by their contents, their mode of representation, and the character of the language; so that, in truth, we possess nothing which, in its original shape, reaches further back than the above-mentioned age. Such being the case, we must recognize not only the internal arrangement, but a good deal also of the contents of the Hebrew writings, as a later elaboration. That criticism has discovered, as it believes, here and there traces of much later hands than those to whom tradition ascribes the authorship of the particular works, does not necessarily always throw discredit on the incidents narrated, nor destroy the value of that peculiar spirit by which they are characterized.

The composition of the extant works in *Hebrew literature* proper would, on this view, extend over a period of nearly 900 years—viz., from the times of David to those of the Maccabees. This period was preceded by a preparatory one of sagas, songs, fragmentary historical notices, inscriptions, laws, and probably also priestly registers. The nature and contents of the particular writings are determined by the changing fortunes of the people, who were at first strong and flourishing; then disrupted and weakened; then held in subjection by Assyrian, Egyptian, Babylonian, Persian, Greek, and Syrian rulers; and, finally, once more independent under native princes. Nevertheless, the prevalent idea—the basis, so to speak, of the whole Hebrew literature, looked at from the merely human point of view—is a passionate enthusiasm for independence and for the preservation of a nationality founded on their law and history; hence its patriotism is of a profoundly religious character. The law and the doctrine are the "word of God"; the Hebrews are the "people of God," his "chosen people"; their fortunes are, in quite a special sense, "providences"; and their poetry has God or the nation for its constant theme. In a certain sense, therefore, as we might expect, all the productions of the Hebrew muse show a marked similarity to each other; still they can be arranged, according to form and contents, under the five heads—law, prophecy, history, lyric poetry, and speculation. (For a special account of these, see the articles on the separate books of the Old Testament; also Bible, Pentateuch, etc.) The same epoch in which took place the transition from Hebraism to Judaism—the epoch of the captivity—was also that which marked the commencement of *Jewish* literature, properly so called. Founded on the earlier and more creative Hebrew, and for the most part written in the same language, it is yet qualified by the presence of religious conceptions borrowed from the Persians, of Greek wisdom, Roman law, and, at a later period, of Arabic poetry and philosophy, and of European science, though everything is strictly subordinated to the great ideas of the ancient faith. Since the return from exile, the Jewish—also, but erroneously, called the *rabbinical*—literature has, without the slightest external encouragement, actively taken part in the cultivation of the human mind; and in the results of this activity, which are still far from being duly appreciated, there lie concealed the richest treasures of centuries. Jewish literature has been divided chronologically into nine periods.

The *first* period extends to 143 B.C. After the return from exile, the Jewish people naturally enough became animated by an intense nationality of feeling; they had nearly lost name, country, life; and now that these were restored again, they strenuously resolved never more to place them in jeopardy. Guided by Ezra, the intellect of the nation began to exhibit surpassing reverence for the Pentateuch and the prophets. Expositions and additions to the earlier history (*midrashim*), as well as Greek translations,

were executed, and several of the hagiographa—such as particular psalms, the so-called Proverbs of Solomon, Ecclesiastes, the books of Chronicles, portions of Ezra and Nehemiah—were written. To this period also, if to any, must belong the uncertain performances of the *great synagogue* (q.v.), a body the existence of which has, as indicated above, been doubted by some early critics, but which is now established beyond any doubt. To this the work of completing the canon of the Old Testament is chiefly ascribed. Towards its close (190–170 B.C.) several writers appear *in propriâ personâ*, as, for instance, Sirach and Aristobulus. The doctors of whom the great synagogue chiefly consisted were called *soferim* (scribes), and the Aramaic finally became the popular dialect of Palestine.

The *second* period extends from 143 B.C. to 135 A.D. The *Midrash* (q.v.), or the inquiry into the meaning of the sacred writings, was divided into *Halacha* (q.v.) and *Hagada;* the former considered the improvement of the law, with a view to practical results; the latter, the essence of the religious and historical interpretations. At first, both were the oral deliverances of the soferim, but gradually written memorials made their appearance. The public interpretation of the Scripture in schools and synagogues, the independence of the sanhedrim, the strife of sects, and the influences of Alexandrian culture, furthered this development. To this period also belong various Greek, but not, as is still erroneously supposed by some, the *written* targums or Aramaic versions of the Bible (see TARGUMS), which sprang at a much later period from oral translations of the Pentateuch in the synagogues instituted after the return from the exile; further the whole of the Apocrypha (q.v.), and the earliest Christian writings, which are at least the productions of men nurtured in the principles of Judaism, and which contain many traces of Judaistic culture, feeling, and faith. It was also characterized by the drawing up of prayers, scriptural expositions, songs, and collections of proverbs. The poet (not the prophet) Ezekiel, the author of the first book of the Maccabees, Jason, Josephus, Philo, Johannes (see above), are names specially worthy of mention; so also are the doctors of the oral law—Hillel (q.v.), Shamai, Jochanan-ben-Saccai, Gamaliel, Eleazar-ben-Hyrcan, Joshua-ben-Chananja, Ishmael, Akiba, and others of like eminence. *Rabbi* (master), *talmid chacham* (disciple of wisdom), were titles of honor given to those expert in a knowledge of the law. Besides the Maccabean coins, Greek and Latin inscriptions belonging to this period are extant.

The *third* period reaches from 135 to 475 A.D. Instruction in the Halacha and Hagada now became the principal employment of the flourishing schools in Galilee, Syria, Rome, and since 219 A.D. in Babylonia; the most distinguished men were the masters of the *Mishna* (q.v.) and the *Talmud* (q.v.)—viz., Eleazar-ben-Jacob, Jehuda, Jose, Meir, Simeon-ben-Jochai, Jehuda the Holy, Nathan, Chija, Rab, Samuel, Jochanan, Hunna, Rabba, Rava, Papa, Ashe, and Abina. Besides expositions, additions to Sirach, ethical treatises, stories, fables, and history were also composed: the prayers were enriched, the targum to the Pentateuch and the Prophets completed, and the calendar fixed by Hillel the second, 340 A.D. After the suppression of the academies in Palestine, those of Persia—viz., at Sura, Pumbeditha, and Nehardea—became the center of Jewish literary activity. On Sabbaths and festal days, the people heard, in the schools and places for prayer, instructive and edifying discourses. Of the biblical literature of the Greek Jews we have only fragments, such as those of the versions of Aquila and Symmachus. With this period terminates the age of direct tradition.

The *fourth* period (from 475 to 740 A.D.). By this time the Jews had long abandoned the use of the Hebrew, and instead had adopted the language of whatever country they happened to dwell in. During the 6th c. the Babylonian Talmud was concluded, the Palestinian Talmud having been redacted about a hundred years before. Little remains of the labors of Jewish physicians of the 7th c., or of the first *geonim* or presidents of the Babylonian schools, who first appear 589 A.D. On the other hand, from the 6th to the 8th c. the Masora was developed in Palestine (at Tiberias); and, besides a collection of the earlier haggadas (e.g., *Bereshith rabba*), independent commentaries were likewise executed, as the *Pesikta;* the *Pirke of Eliezer* (700 A.D.), etc. See MIDRASH; HAGGADA.

In the *fifth* period (from 740 to 1040 A.D.), the Arabs, energetic, brilliant, and victorious in literature as in war, had appropriated to themselves the learning of Hindus, Persians, and Greeks, and thus excited the emulation of the oriental Jews, among whom now sprung up physicians, astronomers, grammarians, commentators, and chroniclers. Religious and historical haggadas, books of morality, and expositions of the Talmud, were likewise composed. The oldest Talmudic compends belong to the age of Anan (*circa* 750 A.D.), the earliest writer of the Karaite Jews. The oldest prayer-book was drawn up about 880 A.D.; and the first Talmudic dictionary about 900 A.D. The most illustrious *geonim* of a later time were Saadia (d. 941 A.D.), equally famous as a commentator and translator of Scripture into Arabic, a doctor of law, a grammarian, theologian, and poet; Scherira (d. 998), and his son Hai (d. 1038), who was the author, among other things, of a dictionary. From Palestine came the completion of the Masora and of the vowel-system; numerous *midrashim*, the hagiographical targums, and the first writings on theological economy, were also executed there. From the 9th to the 11th c. Kairwan and Fez, in Africa, produced several celebrated Jewish doctors and authors. Learned rabbins are likewise found in Italy after the 8th c.—e.g., Julius-

and Pavia, etc. Bari and Otranto were at this time the great seats of Jewish learning in Italy. After the suppression of the Babylonian academies (1040) Spain became the central seat of Jewish literature. To this period belong the oldest Hebrew codices, which go back to the 9th century. Hebrew rhyme is a product of the 8th, and modern Hebrew prosody of the 10th century.

The *sixth* period (from 1040 to 1204 A.D.) is the most splendid era of Jewish mediæval literature. The Spanish Jews busied themselves about theology, exegetics, grammar, poetry, the science of law, astronomy, mathematics, philosophy, rhetoric, and medicine. They wrote sermons and ethical and historical works. The languages employed were Arabic, Rabbinical Hebrew, and ancient or classical Hebrew. We can only mention here the great doctor, Samuel Halevi (d. 1055), etc.; and lastly, the renowned *Maimonides* (q.v.), whose death closes this epoch. The literature of the French rabbins was more natural in its character, and kept more strictly within the limits of the halacha and haggada. In Provence, which combined the literary characteristics of France and Spain, there were celebrated Jewish academies at Lunel, Narbonne, and Nîmes, and we find Talmudists, such as Berahja Halevi, Abraham-ben-David, etc. The fame of the Talmudists of Germany, especially those of Mayence and Ratisbon, was very great. Among the most illustrious Jewish writers of this period, belonging to that country, are Simeon, the compiler of *Yalkut*, Joseph Kara, Petachja, etc. Only a few names belong to Greece and Asia; still the Karaite Jews had a very able writer in Juda Hadassi (1148). The greatest part of the feast-day prayers was completed before Maimonides. Many of the works, however, produced between 740 and the close of this period are lost.

The *seventh* period (from 1204 to 1492 A.D.) bears manifest traces of the influence exercised by Maimonides. Literary activity showed itself partly in the sphere of theologico-exegetic philosophy, partly in the elaboration of the national law. With the growth of a religious mysticism there also sprung up a war of opinions between Talmudists, Philosophers, and Cabbalists. The most celebrated Jews of this period lived in Spain; later, in Portugal, Provence, and Italy. To Spain belongs (in the 13th c.) the poet Jehuda Charisi, etc. In the 15th c. a decline is noticeable. Books written in Hebrew were first printed in Spain, at Ixar in Aragon (1485), at Zamora (1487), and at Lisbon (1489).—During this epoch the chief ornaments of Jewish literature in Provence were Moses-ben-Abraham, David Kimchi, Jeruham, Farissol, Isaac Nathan, the author of the Hebrew Concordance.—In Italy Jewish scholars employed themselves with the translation of Arabic and Latin works. Works of an æsthetical character were written by Immanuel-ben-Solomon, the author of the first Hebrew sonnets; Moses de Rieti, who wrote a Hebrew *Divina Commedia*, etc.—While France could show only a few notable authors, such as the collectors of the Tosafot, Moses de Coucy, and Jehiel-ben-Joseph, the poet and exegete Berachja, Germany produced a multitude of writers on the law, such as Eleazar Halevi, Meyer from Rothenburg, Asher, Isserlin, Lippmann. The most of the extant Hebrew MSS. belong to this period; but a great part of mediæval Jewish literature lies unprinted in Rome, Florence, Parma, Turin, Paris, Oxford, Leyden, Vienna, and Munich.

The *eighth* period (1492 to 1755 A.D.) is not marked by much creative or spiritual force among the Jews. In Italy and the east (1492), in Germany and Poland (1550), in Holland (1620), Jewish scholars worked printing-presses, while numerous authors wrote in Hebrew, Latin, Spanish, Portuguese, Italian, and Judeo-German. Some of the most eminent theologians, philosophers, jurists, historians, mathematicians, poets, commentators, lexicographers, grammarians, etc., of this period were Isaac Abravanel, Elia Misrachi, I. Arama, J. Chabib, Eli Levita, Obadio Seforno, Joseph Cohen, Gedalja Jahia, Sal. Usque, Asaria de Rossi, David de Pomi, David Gans, Isaac Troki, I. Luria, J. Karo, M. Alshech, M. Jafe, J. Heller, J. Aboab, Manasse b. Israel, Dav. Comforte, Leo de Modena, B. Musaphia, J. Eybeschütz, D. Oppenheimer, J. Emden, M. C. Luzzatto, etc.

The *ninth* period extends from 1755 A.D. to the present time. Encouraged by the spirit of the 18th c. Moses Mendelssohn (q.v.) opened, to his coreligionists, a new era, which, as in the middle ages, first manifested itself in the national literature. Its character, contents, expression, and even its phraseology, were changed. Poetry, language, philology, criticism, education, history, and literature have been earnestly cultivated. The sacred books have been translated by them into the languages of modern Europe, and foreign works into Hebrew; and many of this once proscribed and detested race have taken an important part in the public and scientific life of Europe. Among the many illustrious names of this last period we can select only a few, like Ezechiel Landau, Elia Wilna, J. Berlin, Mendelssohn, Maimon, Bendavid, Mendez, Beer, Euchel, Benzev, S. Dubno, Creizenach, Zunz, Jost, Geiger, Rappoport, Dukes, Zedner, Fürst, Sachs, Steinschneider, Munk, Salvador, Reggio, etc.—chiefly cultivators of literature, with reference to their own creed and nationality.

To enumerate names of those who were and are illustrious in general literature, in law, philosophy, medicine, philology, mathematics, belles-lettres, etc., we cannot even attempt, since there is not one country in Europe which does not count Jews among the foremost and most brilliant representatives of its intellectual progress. Of Germany—considered to be in vanguard of European learning—Bunsen says that the greater part of the professors at its universities and academies are Jews or of Jewish origin—(Neau-

der, Gans, Banary, Weil, Benfey, Stahl, Derdberg, Valentin, Lazarus, Herz, etc.)—certainly a most startling fact. Another extraordinary and well-authenticated fact is, that the European press, no less than European finance, which means the freest development of all the resources of soil and science for the gigantic enterprises of our day, are to a great extent in their power; while, on the other hand, names like Heinrich Heine, B. Börne, R. v. Ense, Berthold Auerbach, Henrik Herz, Jules Janin; Felix Mendelssohn-Bartholdy, Halévy, Meyerbeer, Moscheles, Joachim, Ernst, Rubinstein, Wieniawski, Grisi, Braham, Giuglini, Czillag, Costa; Rachel, Davison, Rott, Dessoir; Bendemann, etc., besides hosts of others less familiar to English ears, who shine in all branches of art, music, sculpture, painting, the drama, etc., show plainly how unjust is the reproach of their being an "abstract" people, without sense for the bright side of life and the arts that embellish it. Briefly, they are, by the unanimous verdict of the historians and philosophers of our times, reckoned among the chief promoters of the development of humanity and civilization. What has been their reward we have seen. Terrible has been the punishment for sins and shortcomings, real or imaginary, over which both Christians and Mohammedans have thought good, at different periods, to constitute themselves judges; and the most hideous spot in the history of the last 2,000 years is the systematical but futile endeavor to sweep the "chosen race" from the face of the earth. "If there is a gradation in sufferings, Israel has reached the highest acme; if the long duration of sufferings, and the patience with which they are borne, ennoble, the Jews defy the high-born of all countries; if a literature is called rich which contains a few classical dramas, what place deserves a tragedy lasting a millennium and a half, composed and enacted by the heroes themselves?" With these grand words of Zunz (*Synagogale Poesie*) we conclude our brief sketch, proudly pointing to the final triumph of humanity which belongs to our own day and generation.

JEWS, in point of law, are now, if natural-born subjects, on nearly the same footing as English subjects, the following peculiarities only being noticeable. By the 8 and 9 Vict. c. 52 they were allowed to hold offices in municipal corporations, on condition of signing a declaration (in place of the usual oaths) not to exercise their influence so as to injure or weaken the Protestant church. By the act 34 and 35 Vict. c. 48, they are placed, as regards their schools and places of worship, of education and charities, on the same footing as Protestant dissenters. Before 1845 doubts had prevailed whether the marriages previously celebrated in England among the Jews, according to their own usages, were valid, and the statute 10 and 11 Vict. c. 58 put an end to such doubts, by declaring all such marriages valid, provided both the parties married had been persons professing the Jewish religion. But now, as then, though it is competent for Jews, like other dissenters, to superadd any religious ceremony they please to their marriages, there must in all cases be notice given to the registrar of the district of such marriage being about to take place, the only exemption being that the marriage may be celebrated in the synagogue, and not, as in the ordinary case, in the superintendent registrar's office, or a registered building. A license may also be procured from the superintendent registrar; and the secretaries of the respective synagogues are recognized as the persons to keep the register books of the Jewish marriages. In Scotland there is no peculiar legislation affecting Jewish marriages. Lastly, by the statute 31 and 32 Vict. c. 72, which substituted one oath for the oaths of allegiance, supremacy, and abjuration, an extension of the 8 and 9 Vict. c. 52 was made, to suit the case of the Jews in all cases where the declaration set forth by 9 Geo. IV. c. 17 required to be taken. The result is that not merely as regards municipal offices, but all other offices where the same declaration is required, a Jewish subject is entitled to be admitted with a declaration or without any oath. Moreover, the complete emancipation of the Jews may be said to have been attained by the statute 21 and 22 Vict. c. 49, which enables either house of Parliament, when a Jew would be entitled, but for the oath of allegiance, to sit and vote in the house, to modify that oath by omitting the words, "and I make this declaration upon the true faith of a Christian." When these words are omitted a Jew has no longer any conscientious objection to take the oath, and so is practically admitted, like other subjects, to become a member of either house of parliament. It is, however, still in the discretion of either house to refuse to make the resolution to omit those words, so that Jews have not an absolute right to admission, though practically it is not likely that the admission will in future be refused, at least by the house of commons. The same act specially excludes Jews from holding or exercising the office of guardians and justices of the United Kingdom, or of regent of the United Kingdom, or of lord high chancellor, lord keeper or lord commissioner of the great seal of Great Britain or Ireland, or the office of lord lieutenant or deputy, or other chief governor or governors of Ireland, or her majesty's high commissioner to the general assembly of the church of Scotland. Whenever a Jew holds any office in the gift of her majesty, to which office shall belong any right of presentation to any ecclesiastical benefice, such right of presentation shall devolve upon the archbishop of Canterbury for the time being.

JEWSBURY, Geraldine Endsor; b. England, 1821; sister of Maria Jane; a writer of novels and children's books. Among her works are *Zoe: the History of two Lives; The Half-Sisters; Marian Withers; Constance Herbert*, etc. Her writings have been favorably reviewed by *Blackwood* and the *London Examiner*. She d. 1880.

JEWSBURY, Maria Jane, 1800–33; b. England; contributed articles to the London *Athenæum* and other periodicals, and wrote a number of miscellaneous works, including the following: *Phantasmagoria, or Sketches of Life and Literature; Letters to the Young; Lays of Leisure Hours;* and *Three Histories.* Christopher North commended Miss Jewsbury in *Noctes Ambrosianæ.* In 1833 she was married to the rev. William Fletcher, a missionary, whom she accompanied to India. On her arrival at Bombay she fell a victim to the epidemic of cholera then raging.

JEW'S EAR, *Exidium auricula Judæ,* a fungus, one of the *hymenomycetes,* which grows on decaying parts of living trees, particularly elders. It is a native of Britain. In size and form it bears some resemblance to a human ear. It is soft but cartilaginous, wrinkled, and generally brown. It is stemless. The spores are produced on the upper surface. The under surface is fibrous and downy. Jew's ear was formerly in repute as a topical discutient and astringent. It may be kept long in a dried state. It is still sold in the shops, but *polyporus versicolor* is often substituted for it. The genuine Jew's ear, after being dried, swells when immersed in water; the *polyporus* does not.

JEWS-HARP (Fr. *jeu,* a toy?), a very simple musical instrument, made of metal. When played on, it is held between the teeth, and the sound is produced by the inhaling and ejecting of the air from the lungs, while at the same time an elastic tongue or spring, which is fixed in the middle of the frame, is set into vibration by being twitched by the finger. It is a pretty old invention, and is mentioned by Prätorius in his *Organographia,* in 1619, under the name of crembalum. The best Jews-harps are made in Riva, a town in the Italian Tyrol. The first performer of any celebrity on the Jews-harp was a Prussian soldier, under Frederick the great, called Koch. In modern times Kunert, Amstein, and others, were famous for using a variety of harps, all differently tuned; and their performances were so wonderful, that, like other artists, they traveled over Europe, and appeared at public concerts with great success.

JEWS' MALLOW. See Corchorus.

JEWS' THORN. See Jujube and Paliurus.

JEYPOOR, one of the 19 native states of Rajpootana, India, anciently known as *Amber;* 150 m. long, 140 m. broad; 15,251 sq.m.; pop. 2,000,000. With the exception of some insulated peaks and clusters of hills in the n. and north-western parts, the surface is level. The population is composed of various races, the most numerous being the Minas, supposed to be the aboriginal inhabitants. The next, about equal in number, are the Jats, who are extensive landholders and skillful agriculturists. The Brahmins are more numerous in proportion to the population than in any other part of Rajpootana. The ruling class are the Rajpoots, who, though less numerous than the Minas and Jats, are able to muster 30,000 fighting men. The less important tribes are the Banias, Dhakurs, and Gujurs. The revenue, exclusive of the possessions of the feudal chiefs, is estimated at £458,395. By treaty this country became tributary to the East India company in 1818. In 1842 a large arrear of tribute, which had accumulated, was remitted, and the annual tribute fixed at £40,000. In consequence of intrigue and corruption in the administration a British force was sent to Jeypoor in 1835 to redress existing wrongs, which resulted in restoring order and securing the collection of the revenue. The prince having been poisoned, a regency was appointed during the minority of his successor, and the government was administered with justice and efficiency. The young prince having been initiated into public business, the British authorities, recognizing his fitness for the duties of his station, committed to him in 1851, when 18 years of age, the reins of government. Jeypoor, the capital of the country, is 850 m. n.w. from Calcutta; lat. 26° 56′, long. 75° 55′.

JEYPOOR′, capital of the protected state of the same name, and perhaps the handsomest and most regularly built of the native towns of India, stands about 850 m. to the n.w. of Calcutta, in lat. 26° 56′ n., and long. 75° 55′ east. The place is a rectangle of two miles by one, being subdivided by parallel streets in both directions into small rectangular blocks, the palace and gardens occupying the center. There are numerous temples and mosques, an arsenal, an observatory, and an English and oriental school, with a medical school.—The *state* of Jeypoor is in Rajpootana; area 15,251 sq.m.; pop. 2,000,000.

JEZ′ÉBEL, daughter of Ethbael, king of Tyre and Sidon, and wife of Ahab, king of Israel. Through her influence over her husband she induced him to permit the worship of her country's idols, and finally to depart entirely from the worship of Jehovah. A woman of force and much shrewdness, combined with unscrupulousness, she succeeded in withdrawing the Israelites from the true religion, until, it is related, that there remained but 7,000 of them who had not swerved. After the death of Ahab she maintained the same control over her son Jehoram, who was at last killed by Jehu, who then commanded the death of Jezébel, and she was flung from the window of the palace to the ground beneath, where the dogs devoured her.

JEZI′RAH, or Book of Creation, one of the cabalistic books of the Jews containing a mystical account of the creation of the universe. It is divided into six chapters, which are subdivided into sections. The age of this work is unknown. The Jews claim it to be of divine origin, intrusted by the Lord to Abram, and by him handed down to

the learned rabbi Akiba. The conclusion of modern scholars is that it was composed by the Jewish schools of Egypt in the time of Philo Judæus about a century B.C. The Jezirah has been published, with five commentaries (1562), with a Latin translation and notes (1642), and with a German translation and notes (1830).

JEZ'REEL, a t. of Issachar, which contained a palace of the kings of Israel; deserted by the court after the death of Jezébel. In the time of Eusebius and Jerome it was known under the names of Esdraela and Stradela. In the history of the crusades we meet with it as Parvum Gerinum, the Zerin of the Arabs. Under the latter designation the town stands on a rocky declivity, between the mountains of Gilboa and Hermon, but contains only about 20 ruined huts and a few inhabitants. The original city, in the plain of Esdraelon, is described as having been very beautiful, and the palace erected by Ahab as a marvel of architecture.

JHAN'SI, a fortified t. in Bundelcund, in the North-West Provinces, in lat. 25° 28′ n., long. 78° 38′ east. It carries on a considerable trade, being on the main route between the Deccan and the Doab. During the revolt of 1857 the native garrison murdered all the Europeans, men, women, and children, not leaving one to tell the tale. In the following April the place was recovered, with enormous loss on the part of the insurgents, by a detachment of the Bombay army under sir Hugh Rose.—The *district* of Jhansi has an area of 1567 sq.m. (pop. 317,826); the *division,* of 5,067 sq.m. (pop. 934,934).

JHE'LUM, the ancient Hydaspes, one of the rivers of the Punjab. It rises in Cashmere, which forms its upper basin, and is navigable within that country for about 70 miles. On emerging from the Himalayas through the Baramula pass, it again becomes practicable for small craft. After a course of 490 m. it joins the Chenab, in lat. 31° 10′ n., long. 72° 9′ e., and forms with it what is sometimes called the Trimah or Trimab. The banks of this river were the scene of the battle between Alexander the great and Porus. The river waters the towns of Islamabad, Shahabad, Srinagur, Jelalpur, and Pind Dadun Khan.

JHYLUM, JELUM, or BEHUT. See JHELUM, *ante.*

JIB, a triangular sail borne in front of the foremast in all vessels. It has the bowsprit for a base in schooners and vessels of a smaller class, and the jib-boom in larger vessels, and exerts an important effect, when the wind is a-beam, in throwing the ship's head to leeward. The flying-jib has the flying jib-boom for a base. When a forecourse is not used an additional jib-shaped sail, called the foresail, is spread on the fore-stay.

JIB-BOOM, an extension of the bowsprit of a ship towards the front, running out beyond it, by a cap and irons, as does the topmast above the lowermast. It gives greater spread for jib-sails, and a more extended base for the top-gallant-mast-stay. In large vessels a flying jib-boom is run out in a similar manner beyond the jib-boom.

JIBING. See GYBING.

JID'DAH, or JEDDAH, a trading t. of the Hedjaz, Arabia, is situated on an eminence rising from the eastern shore of the Red sea, about 60 m. w. of Mecca, of which city it is the port. Jiddah is an unhealthy town; it suffers greatly from want of water, and is surrounded by a desert. It has, however, long been the great commercial center of Arabia. It imports corn, rice, butter, and other natural productions from Egypt and Abyssinia, manufactures from India, and slaves from the Malay archipelago. Coffee is largely exported. It is inhabited by a fanatical population, and its religious enthusiasm is never allowed to wane, owing to the numbers of pilgrims to Mecca who are constantly pouring through it. On June 15, 1858, the inhabitants rose against the Christians resident among them, and massacred a considerable number of them. In Aug. of the same year, the town was bombarded by the British, and satisfaction rendered. The pop. fluctuates between 10,000 and 20,000 and upwards.

JIG. See GIGG.

JIGGER. See CHIGOE.

JIGGER, on board ship, an apparatus consisting of a strong rope with a block at one end, and a sheave at the other, used in maintaining the tension of—or, technically, in "holding on" to—the cable as it is thrown off from the capstan or windlass, round which it only takes two or three turns.

JIHUN'. See OXUS.

JIKA'DAZE, or SHIKATZE, a t. of Thibet, capital of the district Zang, on the right bank of the Zangbo, 190 m. w. of Lassa. Pop. estimated at 100,000.

JIME'NA, or XIMENA, a t. of Spain, in the province and 50 m. e. of Cadiz, on the e. declivity of the Sierra de Gazules. The town is regularly built, the streets steep, but clean. There are several churches and schools, a prison, town-house, etc. There are manufactures of leather, linen, earthenware, etc., and a trade in fruit and wine. Pop. 5,878.

JI'NA. See JAINAS.

JINGOISM. See page 886.

JINN, supernatural characters occurring in the Arabian mythology, and supposed to be the children of fire. They were said to be under the government of a race of kings named Suleyman, to one of whom was ascribed the honor of having built the pyramids. There were both good and evil jinns, the one class hideously ugly in appearance, the other beautiful. They were supposed to have the power of manifesting themselves to human beings in the form of serpents, dogs, or other creatures, or of appearing in the guise of human beings, or of becoming invisible at pleasure.

JIN-RIKI-SHA. See page 887.

JIONPOOR, or JOANPORE, a district of Hindustan, in the North-West Provinces, between 26° and 27° n. lat.; bounded n. by Oude, n.e. by Azimghur, e. by Ghazeepoor, s. by Benares and Allahabad; 1552 sq.m.; pop. 798,503. It is well watered, extremely fertile, under good cultivation, and covered with forests. The inhabitants are Hindus and Mohammedans, the former greatly preponderating. With one tribe of the Hindus female infanticide prevailed until abolished by the influence of the British government. The district came into the possession of the British in 1775, and forms part of the Benares zemindary.

JIONPOOR, or JOANPORE, a t. in a district of the same name in the North-West Provinces of Hindustan. It was anciently the capital of an independent principality. It is on the river Goomty, 42 m. from Benares, 147 m. from Lucknow. Sultan Feroz III. of Delhi, having ordered a Hindu temple to be demolished, erected in 1370 around its ruins a fort of solid stone, which he named after his uncle and predecessor Joana. He sent numerous artificers and others to inhabit the new city, which was completed in twelve years. Khuaje Jehan, who became emperor after the subversion of the empire of Delhi by Tamerlane, made Jionpoor the capital. He was succeeded in 1399 by his son Moharic Shah, who in a prosperous reign of 40 years greatly strengthened and improved the city and fortress, and Jionpoor became one of the most renowned cities of Hindustan for religion and learning. It was again annexed to the empire of Delhi in 1468. Many of the mosques and colleges built at that time still exist. The fortress was often taken in the wars between the Afghans and Moguls, and much dilapidated, but was thoroughly repaired about 1570 by the governor of Bengal. The famous bridge of Jionpoor, built 280 years ago, still stands, a monument of ancient splendor and architectural skill. In 1793 it was submerged during the rainy season without any damage from the current. The town around the fort has some brick houses and a large bazaar. Many ruins of tombs and mosques are found in the vicinity of the city. The Jamai Musjed is a very handsome mosque built of stone, and is in good condition.

JITOMIR', chief t. of the government of Volhynia, in European Russia, is situated on the river Teterev, an affluent of the Dnieper, in lat. 50° 15′ n., long. 28° 40′ e. Pop. '80, 41,790. Its foundation is traced back as far as the 10th c., and it was at one time an important stronghold against the invasions of the Cossacks. In 1648 it was nearly destroyed by the Cossack chief Khmelnitzky. In 1778 it was annexed to the Russian empire. The town carries on a trade in leather, wax, honey, and tallow, has two annual fairs, carries on iron and glass works, and extensive cloth manufactures.

JOAB, a nephew of king David, was a distinguished warrior in the days of Saul. David gave him command of his entire army. He was an utterly unscrupulous general, and when David tried to remove him from his position in favor of Amasa, he plunged his sword into the heart of the latter in the very act of embracing him. He joined Adonijah in his conspiracy, and was at last taken by Solomon, although he had sought refuge at the altar in the tabernacle, and was put to death.

JO'ACHIM, JOSEPH, an eminent Hungarian violinist, was b. in the neighborhood of Presburg in 1831, received his early instruction at Pesth under Szervawinsky, director of the orchestra at the theater there, and made his début in public at the age of seven. He afterwards became the pupil of Böhm at Vienna, and at Leipsic studied counterpoint under Hauptmann, and made the friendship of Mendelssohn. His first appearance in London was in 1844, when, though only in his 14th year, he was at once allowed to be one of the most distinguished of contemporary violinists. His performances at Vienna, Pesth, Paris, and London have since established for him the position of the first violinist of the day. In power and brilliancy of execution, and all the mechanical qualities of playing, he is little, if at all, behind Paganini. His works, which include overtures, Hebrew melodies and other songs, and compositions for the violin, are pervaded by the same tenderness and depth of musical feeling that characterize his playing. In 1869 Joachim became a member of the senate of the Berlin academy, and was appointed a director in the conservatory of music there. In 1877 Joachim received the degree of Mus. Doc. from the university of Oxford.

JO'ACHIM, THE PROPHET, 1130–1202; Abbot of Floris; b. Celico, Italy; a Cistercian monk, founder of the monastery of Floris. He was held in high repute even by popes and princes. His followers reverenced him as a prophet. He denounced severely the corruption of the Roman hierarchy, and sought to effect a reformation. Some of his views were peculiar. He taught that the Christian era would close in 1260, followed by a new era under another dispensation. His treatise called the *Everlasting Gospel*, in which he advocated this tenet, was condemned by the Lateran council in 1215, and again by the council of Arles in 1260, which pronounced all his followers heretics. In

the middle of the 13th c. he had many adherents called Joachimites. He wrote many works, predicting in some of them the downfall of the papacy. His life was written by Gregory di Lauro.

JO'ACHIMSTHAL, a t. of Bohemia, near the frontier of Saxony, 69 m. w.n.w. from Prague. It is situated in a valley, on the Weseritz, a feeder of the Eger, which itself flows into the Elbe, near the eastern opening of a remarkable gorge or pass among the lofty Erzgebirge, and at an elevation of 2,366 ft. above the sea. The town has a strange antique appearance, and the Rathhaus is a very remarkable building. Joachimsthal was formerly of greater importance than now, owing to its mines of silver, which are still wrought, but are not so productive as they once were. The produce of the silver mines of Joachimsthal in the 16th c. was, at an average, 21,897 marks. For about a century before 1852 the average produce was only 3,181 marks; and from 1852 to 1862 it was 3,232 marks. Silver mines have been wrought at Joachimsthal from a very remote period; one mine is 300 fathoms deep. The whole number of miners employed at Joachimsthal in the 16th c. was about 12,000, with 400 overseers and other officials, and 800 surveyors. Besides the silver obtained from the mines of this neighborhood it produces also lead, tin, and iron to a considerable amount. Joachimsthal is the seat of offices and courts of mines. Dollars (*thalers*) were first coined here, and hence their name (see DOLLAR). Goiter and cretinism are lamentably prevalent at Joachimsthal. Much coarse lace is made in the surrounding mountainous district. Pop. '80, 5,336.

JOAN, POPE, the name of a supposed female occupant of the papal chair in the 9th century. The popular story represents this singular personage as of English parentage; but, educated at Cologne, Rome, and ultimately Athens, in all which places in the assumed character of a man, and under the name of *Joannes Anglicus*, "John of England," she is alleged to have attained great distinction as a scholar. The narrative adds that having come in the end to Rome, she had ability and adroitness enough to carry the deception so far as to obtain holy orders, and to rise through various gradations to the papal sovereignty itself; but that being nevertheless of immoral life, the fraud was at length discovered, to the infinite scandal of the church, by her becoming pregnant, and being seized with the pains of childbirth on occasion of a public procession. The story had obtained currency, certainly in the latter part of the 13th century. It was inserted, though discredited, by Platina in his *Lives of the Popes*, but the statement does not appear to have been much discussed until the 16th c., when the commentator of Platina, Panvinius, inserted a note in refutation of it. Later Roman Catholic historians of course have published replies to the objections against the papal succession which their adversaries drew from the story of the female pope; but it is curious that the most complete and elaborate investigation of the question was that of a Calvinist divine, Blondel, who demonstrated the historical groundlessness of the story. He was followed on the same side by Leibnitz; and although attempts have been made from time to time by a few writers to maintain the tale, it has been all but universally discarded, its latest patron being prof. Kist of Leyden, who, but a few years since, devoted an elaborate essay, *Verhandeling over de Pausin Joanna*, to the subject. A few words will suffice to explain the state of the historical evidence. The place assigned to the supposed papess is between the historical popes Leo IV. and Benedict III., the latter of whom died Mar. 10, 858. It is alleged that the Joan of the story occupied the papal chair for two years and five months. Now, according to all the chroniclers, with the doubtful exception of Marianus Scotus, Leo IV. did not die till July 10, 855, so that the interval between his death and that of Nicholas I., the successor of Benedict III., would be entirely filled up by the two years and five months of the papess, and no room would be left for the undoubted pontificate (of two and a half years) of Benedict III. Further, Hincmar of Rheims, a contemporary, in his 26th letter to Nicholas I., states that Benedict III. succeeded Leo IV. immediately. It is proved, moreover, by the unquestionable evidence of a diploma still preserved, and of a contemporary coin which Garampi has published, that Benedict III. was actually reigning before the death of the emperor Lothaire, which occurred towards the close of 855. The earliest authorities for the story of pope Joan, not reckoning a more than doubtful MS. of Marianus Scotus, are Martinus Polonus, a writer of the latter part of the 12th c., and a writer named Stephen de Bourbon, who wrote about 1225.—See Gieseler's *Kirchengeschichte*, th. ii. b. ii. s. 5; Wensing's *Over de Pausin Johanna* (Hague, 1845); Döllinger's *Papstfabeln des Mittelalters* (Munich, 1863); and Bianchi Giovini's *Esame Critico degli atti relativi alla Papessa Giovanna* (Milan, 1845).

JO'ANES, VICENTE, 1523–1579; b. Spain; studied in Rome and settled in Valencia, where he founded a new school of painters. He was one of the most distinguished Spanish painters of his time. His subjects were exclusively religious, and many of his works are in the churches and convents of Valencia. His great pieces are "Baptism of Christ," in the cathedral of Valencia; 6 pictures of the "Life of St. Stephen," in the palace of Madrid; and the "Holy Supper," in the Louvre.

JOANNA I., 1327–1382; Queen of Naples; daughter of Charles, duke of Calabria, and granddaughter of Robert of Anjou; was married in 1334 to her second cousin, Andrew of Hungary, who in 1345 was murdered by conspirators instigated, as was believed, by Joanna. His brother, Louis the great of Hungary, invaded Naples to avenge his death,

and she fled to Avignon, the residence of the popes; but on the mediation of the pope she was restored to the throne in 1352. In the schism between the popes Clement VII. and Urban VI. she took sides with Clement, when, at the instigation of Urban, a rebellion occurred in Naples; she was captured by Charles Durazzo, imprisoned, and delivered to the king of Hungary, who had her put to death in 1382.

JOANNA II., 1370–1435; Queen of Naples, 1414–1435; a grandniece of Joanna I.; was married to William of Austria, and afterwards to Jacques de Bourbon count of La Marche. Her character was very dissolute, and her government disturbed by constant feuds and insurrections.

JOANNES, ISLAND OF. See MARAJO, *ante*.

JOAN OF ARC (Fr. JEANNE D'ARC), the MAID OF ORLEANS, was the daughter of respectable peasants, and was b. in 1412, in the village of Domremy, in the department of Vosges, France. She was taught, like other young women of her station in that age, to sew and to spin, but not to read and write. She was distinguished from other girls by her greater simplicity, modesty, industry, and piety. When about thirteen years of age she believed that she saw a flash of light, and heard an unearthly voice, which enjoined her to be modest, and to be diligent in her religious duties. The impression made upon her excitable mind by the national distresses of the time soon gave a new character to the revelations which she supposed herself to receive, and when fifteen years old she imagined that unearthly voices called her to go and fight for the dauphin. Her story was at first rejected, as that of an insane person; but she not only succeeded in making her way to the dauphin, but in persuading him of her heavenly mission. She assumed male attire and warlike equipments, and with a sword and a white banner she put herself at the head of the French troops, whom her example and the notion of her heavenly mission inspired with new enthusiasm. On April 29, 1429, she threw herself, with supplies of provisions, into Orleans, then closely besieged by the English, and from the 4th to the 8th of May made successful sallies upon the English, which resulted in their being compelled to raise the siege. After this important victory the national ardor of the French was rekindled to the utmost, and Joan became the dread of the previously triumphant English. She conducted the dauphin to Rheims, where he was crowned, July 17, 1429, and Joan, with many tears, saluted him as king. She now wished to return home, deeming her mission accomplished; but Charles importuned her to remain with his army, to which she consented. Now, however, because she no longer heard any unearthly voice, she began to have fearful forebodings. She continued to accompany the French army, and was present in many conflicts, till, on May 24, 1430, she threw herself, with a few troops, into Compiègne, which the Burgundian forces besieged; and being driven back by them in a sally, was taken prisoner and sold by the Burgundian officer to the English for a sum of 16,000 francs. Being conveyed to Rouen, the head-quarters of the English, she was brought before the spiritual tribunal of the bishop of Beauvais as a sorceress and heretic; and after a long trial, accompanied with many shameful circumstances, she was condemned to be burned to death. She recanted her alleged errors at the stake, and expressed penitence, in the hope of having her punishment commuted into perpetual imprisonment. But this did not accord with the views of those in whose power she now was. Words which fell from her when subjected to great indignities, and her resumption of male attire when all articles of female dress were carefully removed from her, were made grounds of concluding that she had relapsed, and she was again brought to the stake, on May 30, 1431, and burned. Her family, who had been ennobled upon her account, obtained, in 1440, a revisal of her trial; and in 1456 she was formally pronounced to have been innocent.

Few facts in history seem better authenticated than the death of "the Maid" at Rouen in 1431, and yet grave doubts have been raised on the point. There was a popular belief at the time that some one had been executed in the place of Joan; and many pretended Maids appeared, who, however, were punished as impostors. But a father Vignier, in the 17th c., found among the archives of Metz a paper purporting to be written at the time, and giving an account of the arrival at Metz, on May 20, 1436, of the Maid Jeanne, who was at once recognized by her two brothers, and was subsequently married to a Sieur de Hermoise. Vignier afterwards found in the family muniment-chest of a M. des Armoise, in Lorraine, a contract of marriage between "Robert des Armoise, Knight, with Jeanne D'Arcy, surnamed the Maid of Orleans." In addition to this there was found, in 1740, among the archives of the Maison de Ville of Orleans, under the dates 1435–36, a record of certain payments to a messenger bringing letters from Jeanne the Maid, and also to her brother John du Lils or Lys. (De Lys was the name by which the family of D'Arc was ennobled.) A subsequent entry, Aug. 1, 1439, records a gift on the part of the council of the city for services rendered by her at the siege.—See Quicherat's *Condamnation et Réhabilitation de Jeanne d'Arc* (1850); Delepierre's *Doute Historique* (1855); Wallon's *Jeanne d'Arc* (1867); Molandon's *Première Expédition de Jeanne d'Arc* (1874).

JO'ASH, or JEHO'ASH, King of Israel, son and successor of Jehoahaz and grandson of Jehu, reigned B.C. 838–823. He was a courageous and strong king, but adhered to the idolatry that had been introduced by Jeroboam.

JO'ASH, or JEHO'ASH, about B.C. 884–837; King of Judah, son of Ahaziah and Libnah of Beersheba. On the death of his father, his grandmother Athaliah having massacred his brothers and usurped the throne, he was secreted by his aunt Jehoshebath, the wife of Jehoiada the high-priest, and brought up by her in the chambers connected with the temple until his 8th year, when in a revolution Athaliah was slain, and Joash placed upon the throne. For several years, through the influence of the high-priest, he adhered to the worship of the true God; but after the death of Jehoiada, falling into idolatry, his kingdom was devastated by Hazael of Damascus, he was besieged in Jerusalem, and afterwards murdered in his bed by his servants, after a reign of forty years.

JOB [Heb. *Jyob*, derived by Gesenius from *ayab*, "to be an adversary;" hence (passive) "one who has an adversary," or "a persecuted one"], the leading personage in one of the canonical books of the Old Testament, which is called after him. He is said to have lived in the land of Uz (Sept. *Ausitis*, cf. Ptol. v. 19. 2), a locality somewhere between Idumea, Palestine, and the Euphrates. Whether Job was a real or a fictitious personage has been discussed with superfluous animation by critics. The Talmud (Baba Bathra, xv. 1) holds that "Jjob *never was, and never was created*, but is an allegory." The belief of most scholars at present is that the book of Job is a great dramatic poem, built on a basis of historical tradition. Job is a real person in precisely the same sense as the Hamlet of Shakespeare is a real person; i.e., for each there is a certain genuine groundwork of antique fact; but some of the incidents, together with the sentiments and speeches recorded, are purely imaginative. Who was the author, and when he lived, cannot be, or at any rate has not been, determined with exactitude. Some critics make him anterior to Moses; the LXX. identifies him with "Jobab, king of Edom" (postscr. to Job); others, among whom are many of the Talmudical authorities, regard Moses himself as the author. The Mosaic *period* is claimed for it by Saadia, many of the church fathers, Michaelis, Jahn, Hufnagel, etc. A nearer approximation to what would seem to be the truth is the view held by Gregory Nazianzen, Luther, Döderlein, and others, who assign the work—which shows a certain affinity with the proverbs—to the age of Solomon, when Hebrew poetry was in its full bloom, and a broad catholic spirit pervaded the nation; some have even given Solomon himself the credit of its composition. The reference to the gold of Ophir seems at least conclusive against any hypothesis that would place its composition earlier; and while certain passages in Ezekiel, Jeremiah, Isaiah, Amos, which point to an acquaintance with it, go far to prove its comparatively early existence, Rénan, a recent French critic, considers that it belongs to the first half of the 8th c. B.C.; Ewald pronounces for a later period, and assigns the poem to the beginning of the 7th century. This date is also advocated by Dr. Samuel Davidson in his *Introduction to the Old Testament* (Lond. 1862). Others, again—among whom Clericus, Grotius, Gesenius, Umbreit, Knobel, De Wette, etc.—place it in the period of the exile; Hartmann, Vatke, Reier, and others, in the 5th Christian century.

The earlier German scholars, Herder, Eichhorn, etc., looked upon the author as an Edomite—not a Hebrew at all; but this view is now generally, if not entirely, abandoned. The poem is a genuine product of the Hebrew muse, not, however, standing on narrow national ground—the very scene being laid in a foreign country—but on the broad ground of a universal humanity: it is the attempt of a Hebrew thinker, of enlarged mind, to vindicate the divine government of the world.

Our space will not allow us to enter minutely into a consideration of the design of the poem, or to discuss the various theories which have been advanced. According to Dr. Davidson, it was "to demonstrate the insufficiency of the current doctrine of compensation." It condemns the notion that there is a *necessary* connection between sin and suffering, and without explaining the *cause* of the latter in the case of a good man, displays the most sublime trust in the wisdom of the divine Providence. It exhibits a noble spirituality; and in several places the mysterious contradictions of life seem to awaken in the soul of the writer thoughts of another life beyond the grave, in which God will vindicate the righteousness of His ways. As a work both of genius and art it occupies well-nigh the first rank in Hebrew literature, and is unsurpassed in sublimity of imaginative thought by any poem of antiquity. The language is elaborate and artificial in the highest degree, yet grandly simple withal, betokening not a primitive period in Jewish history, but one highly advanced. The dramatic construction of the poem indicates the same thing. It has a prologue and epilogue; the dialogues are arranged into three series, or, as they may be termed, *acts;* each of these, again, consists of three speeches by Job's friends, with three replies by Job himself, which, by a little stretch of fancy, we may describe as separate *scenes*. The poem (properly so called) opens and closes with a monologue by the author of the piece. The different character of the persons introduced is skillfully observed; their words have a rhythmic flow; and the dialogues are even strophically divided (see Ewald, *Das Buch Jjob übersetzt und erklärt, Zweite Auflage*, 1854). The integrity of the poem in its present form has been strongly questioned by many critics; the inferiority (in a literary and poetic point of view) of the passages containing the speeches of Elihu (xxxii.–xxxvii.), no less than the nature of the prologue and epilogue, are thought to indicate that these passages are the work of a later hand. Compare the commentaries of Schultens, Bertram, Eichhorn, Rosenmüller,

Ewald (with translation), Umbreit, De Wette, Hirzel, Stickel, Schlottmann, Rénan (with an admirable translation into French), Lee, Dillmann, etc.

JOB, Book of (*ante*), is generally regarded as one of the most ancient in the world. An examination of it reveals several facts tending to the probability that it was written between the deluge and the calling of Abraham. 1. As it contains an earnest discussion concerning the method of God's moral government over men in this life, it seems probable that all the great facts, bearing on the question, which were known to have occurred would be adduced by some one or other of the speakers, on one side or other of the argument. The deluge, as one of such facts, is referred to. "Hast thou marked the old way which wicked men have trodden, who were cut down out of time, whose foundation was overflown by a flood?" But there is no reference to the history of Israel in Canaan, the journey through the wilderness, the judgments on Egypt, or the destruction of the cities of the plain. Why such facts were not employed in such a discussion seems difficult to explain, except on the theory that the book was written before they occurred. 2. The only form of idolatry referred to in the book is the worship of the sun and moon, generally regarded as among the earliest forms of idolatry. 3. The mode of divine worship practiced by Job was the patriarchal, in which the father of the family was the priest, as Noah and Abraham were. This fact implies the great antiquity of the book, but does not decide whether it was written before or after Abraham. 4. The reason assigned for the trial to which Job was subjected appears much more forcible on the supposition that it was made at an early period of the world, when there had been few opportunities to decide the question by an appeal to observation and experience. 5. The book contains an unusual number of words of an Arabic cast. This, in the judgment of some, points to an early origin when the connection between Hebrew and Arabic was closer than at a later period. By others this inference is not allowed.

Against the theory that the book was written before Abraham, the tribal names of Job's friends may be urged. Eliphaz was a Temanite, and Bildad a Shuite. As Esau had a grandson Teman and Abraham a son Shuah, if Job's friends were descendants from them a date later than Abraham and Esau must be assigned to the book. But it is possible that there were men of the same names who lived nearer the flood. Job, it is said, was of the land of Uz. As a duke or chief of Edom, contemporary with Esau, had a grandson Uz, it might be inferred that the land received its name from him, and consequently that Job lived after Esau. But from earlier records it appears that Abraham had a nephew and Shem a grandson of the same name, so that the land may have been called after even the earlier of them. A similar possibility exists with regard to the other names. The Chaldeans and the Sabeans also are mentioned, but the origin of both may be traced back near to the flood.

The introduction and conclusion of the book contain brief narratives in prose, but the discussion which occupies the chief part of it is a poem of very high order both in sentiment and style. I. The introduction narrates Job's piety, wealth, and care for the religious welfare of his children. Satan, having insinuated that his piety was prompted by worldly motives, was allowed to try him; first by taking from him his property and children, and afterwards by inflicting on him severe physical suffering. All this he endured for a time without falling into sin. Three of his friends coming to condole with him, rent their garments when they saw him, wept over him, and sat down in silence seven days. At length driven, by the continuance of his severe trials, to the utterance of maledictions against the day of his birth, he ended also the silence of his friends. II. Eliphaz begins the discussion mildly, and with regret that he feels compelled to speak. Reminding Job of his wise and encouraging counsel to others in their afflictions, he expresses surprise that he sinks down under his own sorrows. He asserts that the righteous are never given up to suffering, but that, while the incorrigible are overwhelmed, God punishes also those whose uprightness is imperfect though sincere. He therefore exhorts Job to submit to the calamities which have come on him as the just punishment of his sins, and to hope that, through the mercy of God, all will yet be well with him. Job in reply avers that he has sufficient reason to complain, that his afflictions are too heavy to be borne, and that he wishes for death from the hand of God as the only relief. He complains of his friends as heartless in condemning him; compares them to a deceitful brook which mocks the thirsty traveler; reminds them that he has not sought their sympathy or help, yet assures them that if they have any just considerations to present he will patiently hear them. He then turns from them to God, lamenting the vanity and weariness of his condition, imploring relief, giving vent to the bitterness of his soul and asking that God will let him alone, will accept his confession, and forgive his sins. Bildad next speaks, roughly assuming that Job's children have been cut off because of their sins, and that Job himself, if he be upright and will seek the Lord, may have his sorrows turned to joy. Job replies that he admits all that has been said concerning the just government of God, but that men are too imperfect to merit his favor and too weak to endure his stroke. Yet, according to the comparative goodness which they can attain, he asserts his righteousness, and complains that God, judging him according to his own infinite holiness, treats him as a sinner notwithstanding all his efforts to do right. Again he bitterly laments his birth, and calls on God to let him alone for a little while that he may have some rest before he goes down to the grave.

Zophar makes the third attack on Job, calling his defense senseless and false, telling him that his afflictions, overwhelming as they are, are less than his iniquity deserves; that if he will humble his heart, forsake his sins, and call on God, he may yet be restored to prosperity and peace; but that if he continue impenitent all hope of deliverance will be vain. As all the three friends have now spoken, Job replies, in cutting language, to them all, saying, "No doubt but ye are the people, and wisdom shall die with you." Yet he affirms that his knowledge is not inferior to theirs; yea, that they have uttered only commonplace things which everybody knows. Appealing to the air, the land, and the sea as full of the works of God, whose supremacy he acknowledges over all the affairs of mankind, and declaring his own readiness to submit his case to him, he charges his friends with having made false statements in their pretense of zeal for the divine government, and professes his determination to continue his trust in God even unto death. Then, addressing himself directly to God, he pleads with him to withdraw his hand from him and not to overwhelm him with his mighty power, as a tempest that puts forth its strength in crushing the dry stubble or a driven leaf. After this he closes his reply with a beautiful lamentation over the frailty of life. 2. The second division of the discussion Eliphaz, as before, begins. He charges Job with vanity, presumption, prayerlessness, arrogance, and craft. He vindicates the government of God, which, he declares, deals with the wicked according to their character, sending on them disquietude of spirit in the midst of external safety, ruin in the hour of prosperity, and destruction when they think themselves strong. Job's reply condemns his friends severely as miserable comforters, complains irreverently against God as giving him up into the hands of the wicked, and breaking him with breach upon breach. He also asserts passionately his innocence, to which, he says, earth and heaven will both bear witness. Bildad's second address is increasingly severe on Job, treating all his arguments as vain and arrogant attacks on the government of God, and denouncing on him the terrible calamities which, he says, are manifestly the portion of the wicked. Job's answer to this cruel speech is from the depths of a sorrowful yet subdued spirit. He calls on his friends to remember that God has overthrown him, has shut up and darkened his path, has removed the crown from his head, and surrounded him with destruction; so that his brethren, kinsfolk and friends, his servants, and even his wife count him as a stranger, and little children despise him. Then with a pathetic appeal for human pity because God's hand is upon him, he passes the crisis of his distress, and springs up to a sublime confidence in God which pours the light of redemption on the scene. Conscious of the importance of what he is about to say, he looks eagerly around for some way of preserving it. "Who will write the words that now I speak? Who will engrave them on a tablet and cut them into the rock forever? For I know that my redeemer liveth, and at the latter day will stand upon the earth. Though this will be after they have destroyed even my skin, yet, delivered from the flesh, shall I see God. I shall behold him on my side; mine eyes shall see him, and *he* will not be a stranger to me, even though my reins within me are consumed." 3. From this point the discussion becomes easier to understand. Job's friends, adhering to their theory that God deals with men in accordance with their characters, charge on him iniquity of conduct and of heart, which, they insist, must be as aggravated as his afflictions are great: while he, turning increasingly away from man, confesses the majesty, sovereignty, and justice of God; gives a grand description of wisdom as consisting in fearing the Lord and departing from evil; asserts his integrity in God's sight, and declares that if *he* will pronounce judgment in his case he will bind it as a crown of righteousness on his head. At length, the three friends having been silenced, a fourth takes up the argument—Elihu, the youngest of the company, who has listened in silence but with growing impatience to all that has been said. Displeased with his companions because they have not answered Job aright, and with Job because he has maintained his own righteousness, he calls on all to listen to him. While he agrees with much that has been advanced concerning the punishment of sinners in this life, he asserts, as a principle in God's government which none of the disputants have made prominent, that affliction is often sent on men for their profit that they may be turned from their evil purposes and humbled in their pride. The debate is closed by the Lord himself, answering Job out of the whirlwind and drawing from him the humble confession, "Behold I am vile; I have heard of thee by the hearing of the ear, but now mine eye seeth thee; wherefore I abhor myself and repent in dust and ashes." III. After this the condemnation of his three friends was pronounced; and Job having prayed for them, his own captivity was turned, and the Lord blessed the latter portion of his life more than he had its beginning.

JOBERT DE LAMBALLE, Antoine Joseph, 1799–1867; b. Lamballe; an eminent surgeon of Paris, surgeon at the hospital of St. Louis in 1830, and surgeon to the emperor in 1854. He was insane in the latter part of his life. His principal works are *Traité Théorique et Pratique des Maladies Chirurgicales du Canal Intestinal*, two vols.; *Traité de Chirurgie Plastique;* and *Traitement des Fistules vesico vaginales.* For the first of these he received 2,000 francs from the French institute, of which he was a member.

JOB'S TEARS, *Coix lachryma*, a corn-plant of India. It is a grass, sometimes rising to the height of 8 ft., with the stout habit of maize, to which also it is botanically allied: but the male and female flowers grow close together in spikelets,

which are produced in axillary clusters. The name is derived from the tear-like form of the hard, shining, bluish-white seeds, which are sometimes made into bracelets and necklaces, and are also an article of food. This plant is cultivated to some extent in many parts of India, but it is one of the worst of the cereals. It has become almost naturalized in Spain and Portugal, and flour made from it is there used, but it is chiefly a resource of the poor in times of scarcity.

JO DAVIESS, a n.w. co. of Illinois, bounded n. by Wisconsin, and s.w. by the Mississippi, which separates it from Iowa; 650 sq.m.; pop. '80, 27,528. Surface irregular and well watered; soil fertile. Chief products are wheat, maize, oats, wool, and hay. Mines of lead are numerous, and copper is found. The articles of manufacture are carriages, agricultural implements, saddlery, and machinery. There are some flour-mills and breweries. Co. seat, Galena.

JODELLE, ETIENNE, 1532–1573; b. Paris; a dramatic poet, distinguished for his efforts to substitute the institutions of the Greek drama and choruses for the *mysteries* and *moralities* then in vogue under the patronage of the church. His tragedies, *Cleopâtre Captive* and *Didon*, and his comedy, *Eugène ou Rencontre*, were very successful. He excelled also as an orator, painter, and sculptor.

JODELN, a peculiar manner of singing with the falsetto voice in harmonic progressions, which exists only among the Tyrolese and the Swiss.

JO'EL (Jehovah is God), the son of Pethuel, one of the twelve minor prophets, who delivered his predictions, according to some, in the days of Joash; others, however, place him variously, in the time of Hezekiah. Manasseh, Josiah, Uzziah, &c. Concerning the circumstances of his life absolutely nothing is known. The occasion of his prophecy was an extraordinary plague of locusts, accompanied by an extreme drought, which consumed the land. After describing these judgments the prophet calls upon his countrymen to repent, and assures them that God is ready to forgive. Extraordinary warmth and tenderness of feeling, together with an enthusiastic belief in the glory of the future destiny of the people, run through the whole of the book. Some of the passages have been understood by theologians as predictive of the blessings of the Messianic age, and one is actually applied by the apostle Peter to the events which transpired on the day of Pentecost (Acts ii. 16–21). The style of Joel, always vivid and eloquent, sometimes sublime, is perhaps the very finest of any of the Old Testament writers. One of the most elaborate works on Joel is Credner's *Der Prophet Joel*. Compare Ewald, Umbreit, Henderson, &c.

JOEL, PROPHECY OF (*ante*), one of the earliest of the prophetical books, contains a series of general predictions which later prophets give more definitely. It consists of four parts: I. An announcement of devastation inflicted on the land by hosts of locusts and worms. Some interpret this as a literal description of destruction caused by these plagues of the field. Others regard it as an emblem of invasions by great armies of men led by Assyrian and Babylonian kings; or, with still wider range, by the Assyrians and Chaldeans, the Medes and Persians, Alexander, and the Romans. II. A call on the people for repentance and contrition of heart, to be manifested by fasting, solemn assemblies, and mourning; accompanied with an assurance that their transgressions should be forgiven and prosperity restored. III. A prediction of Messianic blessings that would characterize the last days. The fulfillment of this—beginning at the day of Pentecost (Acts ii. 16), which was followed not many years after by the destruction of the Jewish dispensation—is still advancing in the world's history. IV. A prediction of judgments on the adversaries of God's people, among whom Tyre, Sidon, other nations on the coast of Palestine, Egypt, and Edom, are mentioned, perhaps as representatives of all; with promises of final and perpetual blessings on Judah and Jerusalem.

JOE MILLER'S JESTS, or the WIT'S VADE-MECUM, a well-known collection of facetiæ, first published in 1739. A great proportion of the good things which this book contained appears to have been the product of the period immediately preceding its publication. They are more often humorous than witty, and they seem to have been all the more popular on account of a profusion of coarseness and indecency, such as the taste of the present age could not endure. A second edition of the *Jests* was called for in the year of the first publication; they came to a fourth edition in the following year; and the work, growing in size at every fresh appearance, had reached its 14th edition by 1760. Innumerable issues of it, or of works founded upon it, bearing the same or similar titles, have since been published in England and America. It has, in many cases, been modified more or less, to suit the growing nicety of the public—with detriment, it must be said, to the quality of its humor; and, indeed, it would almost seem as if humor flourished upon obscenity as flowers do upon manure. A lithographic facsimile of the first edition, which is now exceedingly rare—there is no copy in the British museum—was published in 1861. The exact title was as follows: "*Joe Miller's Jests, or the Wit's Vade-mecum; being a Collection of the most Brilliant Jests, the Politest Repartees, the most Elegant Bons-mots, and most Pleasant Short Stories in the English Language.* First carefully collected in the company, and many of them transcribed from the Mouth of the Facetious Gentleman whose name they bear; and now set forth and

published by his Lamentable Friend and Former Companion, Elijah Jenkins, Esq.; most humbly inscribed to those Choice Spirits of the Age, Captain Bodens, Mr. Alexander Pope, Mr. Professor Lacy, Mr. Orator Henley, and Job Baker, the Kettle-drummer. London, T. Read, Dogwell Court, Whitefriars, Fleet Street, 1739."

The Joe Miller whose name has been handed down in connection with this compilation of jests was Joseph Miller, an eminent comic actor, reputed among the tavern-hunters of his time as a fellow of infinite humor. He was born, it is believed, in London, in 1684; he died in London in 1738, and was buried in the churchyard of St. Clement Danes in the Strand, where there is a tombstone erected to his memory, bearing an epitaph by Stephen Duck. He was a great favorite with the public, and is said to have contributed by his acting to the popularity of Congreve's plays. Ben in *Love for Love*, sir Joseph Wittol in the *Old Bachelor*, and Teague in the *Committee*, were the characters in which he was most successful; his portrait was painted in the last two of these. The compiler of the *Jests* was John Mottley, an author of no great reputation, who is said to have amused himself by writing down or dictating them at a time when he was laid up with the gout. Mottley was the son of a col. Mottley, who, having been high in favor with James II., followed James into exile, got a command in the service of Louis XIV., and was killed at the battle of Turin in 1708. Col. Mottley had married before the revolution a Gloucestershire lady of considerable fortune. His wife—her family being zealous for the revolution—refused to accompany him to St. Germain. Three of four years later he made a stay of considerable length in England upon a secret commission from James; and his son, the compiler of the *Jests*, was born in London, in 1692. Mottley was educated at St. Martin's library school in London; and, through the influence of viscount Howe, who was a connection of his mother, he got, at the age of 16, a place in the excise office. This place he lost in 1720, apparently through some involvement in the bubble speculations of that year; and afterwards, though he had promises both from lord Halifax and from sir Robert Walpole, he never succeeded in obtaining an office. He had to live by his wits, and he produced five or six plays—the first of them named the *Imperial Captive*—which met with some success. He seems to have owed not a little to the patronage he received from people of fashion and from the court. In 1739, the year in which he produced *Joe Miller's Jests*, he also published a life of the great czar Peter, in 3 vols. 8vo. This work was published by subscription, and had the support of the royal family, and of a great number of the nobility and gentry. He followed it up in 1744 with the *History of the Life and Reign of the Empress Catharine of Russia*, 2 vols. 8vo. These works were mere compilations from the journals and other publications of the time; but with the lapse of time they have acquired some value, through the scarcity or disappearance of the authorities upon which they were founded. Mottley died Oct. 3, 1750.

JOG'GLE, in masonry, is a notch or curve in the joints, adopted in fitting stones together, so as to prevent them from slipping. Fig. 1 is a common form. The joggle-joint is commonly used in straight arches for this purpose, as in fig. 2. Joggles are also used where very tight joints are required to resist water, etc. Sometimes the joggle consists of a piece of hard stone let into a groove cut in both the stones forming the joint.

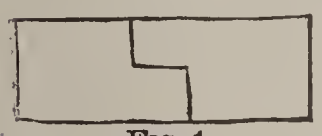

Fig. 1.

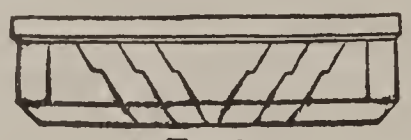

Fig. 2.

JOGHIS. See Yoga, and Yogin, *ante.*

JOHAN'NA, one of the Comoro islands (q.v.).

JOGUES, Isaac, 1607–46; b. Orleans, France; was ordained in Paris, and sent to Canada as a Jesuit missionary in 1636. After laboring several years among the Huron Indians, he established a mission at Sault St. Marie among some Algonquin tribes. With a party of Hurons he went to Quebec for supplies for the mission, and returning, they fell into an ambuscade, nearly all his companions were killed or taken, and he was made a slave and treated with great cruelty. Escaping to the Dutch at Albany and thence to New Amsterdam, he was kindly received by governor Kieft, and sent to Europe. Returning from France to Canada he confirmed a treaty of peace between the French and Mohawks in 1646, and founded a mission with that tribe, but was killed at Caughnawaga on suspicion of sorcery. An account of his captivity in Latin, of the tomahawking of René Goupil at his side, and a description of New Netherlands, with his letters were published by the New York historical society.

JOGUES, or Yugs, divisions of time in the fabulous chronology of the Hindus; as the suttee yug, tirtah yug, dwapaar yug, etc., each supposed to have covered some millions of years, and to have included a period of purity, degeneracy, or corruption, as the case might be.

JOHANNES SECUNDUS, 1511–36; b. at the Hague. His true name was Jan Everard. He had some reputation as a sculptor and painter, but excelled chiefly as a poet. He accompanied Charles V. on his expedition to Tunis. He was a man of genius and learning. His poems are admired for their classical purity, and have been trans-

lated into nearly all the principal European languages. His *Opera Poetica* were published by his brothers in 1851.

JOHAN'NISBERGER. See GERMAN WINES.

JOHANNOT, CHARLES HENRI ALFRED, 1800–37; b. Hesse-Darmstadt; educated at Paris, and distinguished himself by his engravings and paintings. His two most celebrated pictures are "Mademoiselle de Montpensier" and "The Battle of Brattelan." "The Shipwreck of Don Juan," and "Cinq Mars," obtained for him several commissions from Louis Philippe.

JOHN, the name of a long line of popes, the number of whom is variously stated by different historians, owing to some uncertainty as to the designation of two of the popes in the series—John VIII. (872–82), who is styled the IX. by some writers, who, accepting the story of pope Joan (q.v.), reckon her as John VIII.; and John XV. (985–96), who is also called XVI. by those who place before him another John who died within a few days of his election. Without entering into this question, it will suffice to say that the last of the line of popes called John is John XXIII. The following appear to deserve some special notice.—JOHN XII. was the son of Alberico, and grandson of the notorious Marozia, who, during the pontificate of John X. (913–27), ruled with almost supreme power at Rome. John was originally named Octavianus, and on the death of pope Agapitus in 956, being elected pope through the lawless intrigue or violence of the dominant party, when only in his 19th year, was the first in the papal line to originate the now familiar practice of changing his name. His life, according to accounts which it is impossible to discredit, was what might be expected from such antecedents, scandalous and disorderly; and although he had crowned Otho emperor and king of Italy in 962, that monarch in 963, in a synod of the clergy, overstepping all the ordinary rules of canonical procedure and legal precedent, caused sentence of deposition for scandalous life to be pronounced against John, and Leo VIII. to be elected in his stead. John, however, re-entered Rome in the following year with a strong party, and drove out Leo; but his career was cut short by a dishonorable death. He was killed, according to Luitprand, while prosecuting an unlawful intrigue in 964. In his effeminacy or licentiousness, Panvinius and other historians find the origin of the fable of pope Joan.—JOHN XXII. is one of the most celebrated of the popes of Avignon. His family name was James de Cahors, and he was elected pope in 1316, on the death of Clement V. Attempting to carry out, in very altered circumstances, the vast and comprehensive policy of Gregory VII. and Innocent III., John interposed his authority in the contest for the imperial crown between Louis of Bavaria and Frederick of Austria, by not only espousing the cause of the latter, but even excommunicating his rival. The public opinion, however, and the political relations of the papacy founded upon it had already begun to change. The diet of Frankfort refused to obey, and a long contest ensued, not only in Germany, but also in Italy, where the Guelph or papal party was represented by Robert, king of Naples, Frederick of Sicily being the chief leader of the Ghibellines. The latter was placed by John under the same ban which had already been proclaimed against Louis; but in 1327 Louis came to Italy in person, and having been crowned at Milan with the iron crown, advanced upon Rome, expelled the papal legate, and was crowned emperor in the church of St. Peter's by two Lombard bishops. Immediately on his coronation he proceeded to hold an assembly, in which he caused the pope, under his original name of James de Cahors, to be thrice summoned to answer a charge of heresy and breach of fealty; after which he caused him to be deposed, and Peter de Corvara, a monk, to be elected pope, under the name of Nicholas V. These measures, however, were attended with little result. Louis returned to Germany, and the Guelphic predominance at Rome was restored, the papal representative resuming his authority. But John XXII. never personally visited Rome, having died at Avignon in 1334, when, although without incurring the suspicion of personal aggrandizement, he had accumulated in the papal treasury the enormous sum of 18,000,000 florins of gold. This pope is remarkable in theological history as the author of that portion of the canon law called the *Extravagantes*, and also as having held the singular opinion, that the just will not be admitted to the beatific vision until after the general resurrection. This opinion he formally retracted before his death.

JOHN (*ante*), the name of twenty-three popes.—I., a Tuscan, who followed Hormisdas in the papal chair, in 523. He was employed by king Theodoric on a special mission to Constantinople, in which he would appear to have been unsuccessful, as on his return he was cast into prison, where he died, after having been pope only three years.—II. succeeded Boniface II. about 533, after an election on the part of the clergy and people of Rome. Died 535.—III. succeeded Pelagius I. in 560, receiving his confirmation from the emperor Justinian, at the hands of the exarch of Ravenna. His occupancy of the papal see was made noteworthy by the occurrence of his conflict with the French clergy, who refused to recognize his authority. He died in 573.—IV., born in Dalmatia, became pontiff on the death of Severinus in 640. The emperor Heraclius having issued an edict in defense of the Monothelites, a schismatic sect, John assembled a council in Rome which condemned both the heresy and its defender. His death occurred in 642.—V., born at Antioch in Syria, and succeeded Benedict II. in 685; died in Aug., 687.—VI., born in Greece; succeeded to the papal throne in 701. Certain charges

having been brought by the English clergy against Wilfred, archbishop of York, John called a council at Rome, which acquitted him. This pope died in 705.—VII., a Greek, who succeeded John VI., but only lived two years.—VIII., born in Rome, and succeeded Adrian II. in 872, devoted himself to extending the limits of the papal power, but was greatly thwarted by frequent incursions of the Saracens into Italy. He died by assassination in 882.—IX., born at Tibur (Tivoli), in Italy, and was raised from a convent of Benedictines to be pope in 898. He died two years later.—X. (Giovanni Cenci) succeeded to the chair in 914, and displayed great courage and force of character. He commanded in person a victorious movement of his armies against the Saracens, but becoming the victim of plots and intrigues on the part of the duke of Tuscany and his wife, was, by their orders, thrown into prison, and afterwards murdered, in 928.—XI. (Giovanni Conti), the natural son of the infamous Marosia, wife of the duke of Tuscany, already mentioned. The two were seized by Alberico, another son of Marosia, and were imprisoned together in the castle of Saint Angelo. John succeeded Stephen VIII. in 931, and was himself succeeded by Leo VII. in 936.—XII. (Ottaviano Conti) was the son of Alberico, and was elected pope when only eighteen years of age, and assumed the name Octavianus, being the first pope to adopt this custom. His licentiousness and his many crimes caused him to be summoned before a council called by Otho I., the first German emperor, and whom John had crowned. By this council he was condemned and deposed in 963. The following year he succeeded in partially reinstating himself, but fell suddenly ill, and died in 964.—XIII. was bishop of Narni, and was elected to the papacy on the demise of Benedict V. in 965, with the approval of the emperor Otho. A revolution broke out in Rome against this pope, which resulted in his capture and imprisonment. He was sustained by Otho, who marched on Rome, defeated the insurgents, and after hanging thirteen of their leaders, restored John to his position. The latter died in 972.—XIV. (Peter), bishop of Pavia, became pope about 984, succeeding Benedict VII. He retained the pontificate only nine months, when he was overthrown by Boniface VII., who procured his imprisonment, and finally his assassination, which took place in prison.—XV. succeeded John XIV. in 985, but died a few days after his election.—XVI. was elected in 985, and continued to occupy the holy see until his death, which occurred in 996.—XVII. (Philagathus), a Roman by birth, who became pope in 997, through the influence of the consul Crescentius, who deposed Gregory V. in his favor. The latter was, however, restored by the aid of Otho III., and John was murdered.—XVIII. (Sicco), an Italian of noble birth, who died a few months after assuming the pontifical title.—XIX. (Phasianus) became pope in 1003, but retired to a monastery six years later.—XX. (Romanus), son of one of the counts of Tuscany (Gregory), and succeeded his brother, Benedict VIII., in 1024. He died ten years later.—XXI. (Pedro), a native of Lisbon, succeeded Adrian V. in 1276, but only survived his election a few months.—XXII. (Jacques d'Euse, or James of Ossa), was elected to succeed Clement V. in 1316. At this period the feud of the Guelphs and the Ghibellines was disturbing Italy, and John espoused the cause of the former. The families of Visconti, Colonna, and other well-known names were among the leaders of the Ghibellines, who fought under the banner of Louis, king of Bavaria, afterwards crowned emperor in St. Peter's. While John held court at Avignon, a monk of Abruzzo, named Peter de Corvara, was made pope by Louis, under the name of Nicholas V. There were thus a pope at Avignon and another pope at Rome. John died at the former place in 1334, without having succeeded in relieving Italy from her warlike condition.—XXIII. (Cardinal Cossa), a Neapolitan, who succeeded Alexander V. in 1410. He held a disputed title, his rivals being Benedict XIII. and Gregory XII. His morals were loose, and his miserly nature made him many and powerful enemies. Having quarreled with Ladislaus, king of Naples, the latter roused the people of Rome against him, and procured his expulsion. Having appealed to the council of Constance, he was required to abdicate, was imprisoned for three years, and died in 1419.

JOHN, THE APOSTLE AND EVANGELIST, was the son of Zebedee, a fisherman of the sea of Galilee, and of Salome. He was b. at Bethsaida, and, till he was called by Jesus to be his disciple, seems to have followed his father's occupation. The events of his life, from this time to the ascension of Christ, are to be learned from the gospels. After the outpouring of the Spirit on the day of pentecost, he appears to have labored for the spread of the Gospel first in Jerusalem and Samaria, and afterwards to have had his residence chiefly in Ephesus. During the reign of the emperor Domitian he was driven by persecution to the isle of Patmos, but returned to Ephesus under Nerva, and died there at a great age. The dates assigned to this event range from 89 to 120 A.D., and in any case he must have long survived his brother apostles. It is believed that he was the only one of our Lord's apostles who died a natural death. Tradition accounts for this by representing his life as miraculously preserved. He is represented in Scripture as of a peculiarly affectionate nature, "the disciple whom Jesus loved;" and tradition makes his last words to have been, "Little children, love one another." The works attributed to him are the gospel, the three epistles of St. John, and the book of Revelation. The gospel was long regarded as indisputably the work of St. John, and so held to have been written not later than 78 A.D. But of late the Johannine authorship has been con-

fidently denied, especially by critics of the Tübingen school. These, headed by Baur (q.v.), regard the gospel as representing a theology that arose after the Pauline and Petrine schools had long divided the early church, and as being therefore a work of the middle of the second century. The author, they hold, was a Gentile, and his purpose in writing was rather dogmatical than historical. Of the epistles, it is almost certain that the first proceeded from the same writer who composed the gospel. In style, language, and doctrine, it is identical with it, and from the earliest times it was quoted as a work of the apostle John; but the second and third are classed by Eusebius among the *Antilegomena* (Scriptures of doubtful genuineness), and were suspected by the most learned and critical of the early fathers.—For an account of the book of Revelation, see REVELATION OF ST. JOHN.

JOHN, THE APOSTLE AND EVANGELIST (*ante*), was probably one of the two disciples of John the Baptist who, impressed with the witness of their master to Jesus of Nazareth, followed him and, having abode with him the rest of the day, were thenceforth numbered among his disciples. He and his brother James were called to be fishers of men in close connection with two other brethren, Simon and Andrew. When the twelve apostles were chosen, these four were placed at the head of the list. John and James received from Jesus the surname, "Boanerges," signifying sons of thunder. Through their mother, Salome, they sought from him what they considered the two places in his kingdom that were nearest to himself. In a Samaritan village that would not receive him they asked, "Lord shall we command fire to come down from heaven and consume them?" At another time John said, "Master, we saw one casting out devils in thy name and we forbade him, because he followed not with us." John, Peter, and James were often specially trusted by their master. They only of the apostles were with him when he raised the daughter of Jairus, when he was transfigured on the holy mount, and when he entered on his conflict in the garden. Besides the frequent association of the three apostles, a still closer intimacy existed between John and Peter, recorded first, and perhaps beginning, when Jesus sent them together into Jerusalem to prepare the last passover. Afterwards, at the supper, they held confidential communication together in the effort to ascertain who was to be the traitor. When Jesus was arraigned before the great council, John, through his acquaintance with the high priest, in whose house the session was held, obtained admission for himself and Peter. They were together on the morning of the resurrection, when Mary Magdalene told them of the opened and empty sepulcher, and together they started immediately to see for themselves—John outrunning Peter, but Peter entering in before John. At the sea of Tiberias a special intimacy between them was shown when John, first of the company in recognizing the Lord, informed Peter personally of his discovery; and when Peter, having had the manner of his death intimated to him, inquired earnestly concerning John, "Lord, what shall this man do?" After the day of pentecost, they went together into the temple and were together in healing the lame man, in their imprisonment, and in their bold answer before the council. After the gospel had been preached in Samaria, they were sent together by the other apostles to direct and perfect the movement there. And they were still together in Jerusalem, accounted—with the second James—as pillars of the church, 17 years after the conversion of Paul. While John, from the beginning of Christ's ministry, was one of the chosen three and of the yet more favored two, he was also honored by an association with the Lord himself closer than any of the rest obtained. Not until the last passover is the distinction recorded; probably not until then was it manifested; perhaps the only outward sign of it was in the privilege given him of reclining with his head on the breast of Jesus, at that supper before which the apostles had disputed among themselves about the place that each should have in the expected kingdom. From that time he designates himself in his gospel as "the disciple whom Jesus loved." He only of the apostles stood by the cross, where he received from the Lord in his dying agony the precious charge of his mother, who was also standing by, that he might be to her as a son. After the martyrdom of Paul, John, according to the general testimony of the early Christians, resided at Ephesus, having an apostolic oversight of the churches in proconsular Asia.

JOHN, GOSPEL OF (JOHN, *ante*), I., was one of the books of the New Testament which were of standard authority in the council of Nice, 325 A.D., as possessed and acknowledged to be of apostolic origin by all the churches of Christendom. In this judgment both the parties, orthodox and Arian, of which the council was composed, were agreed. And the agreement was not disturbed by the fact that the great question in debate between them and in the churches—the proper divinity of Christ—brought this gospel into the center of the arena; so that if there had been any uncertainty respecting its genuineness the discussion would, inevitably, have made it appear. As an incidental result, therefore, that great council demonstrated the fact that, in the first quarter of the 4th c., the gospel of John was in universal use throughout the Christian church as his genuine and unquestioned work. This demonstration, in itself so clear, is confirmed by the individual testimony to the same effect given, outside of the council, by Eusebius, Athanasius, and Arius. II. About the same time the emperor Constantine made provision for building new churches and preparing new copies of the Scriptures,

in which John's gospel was included, to fill the place of those which, at the close of the 3d c., during the persecution under Diocletian, had been destroyed. It is therefore plain that, in the last quarter of the 3d c., this gospel was one of the books of Scripture in use throughout the Christian churches. III. Origen, whose life extended from 253 back to 184 A.D., was a diligent student and famous teacher of the Scriptures, as well as a great traveler among the churches. He visited almost all parts of Christendom, became acquainted with many presbyters and bishops, taught in many churches, drew students to Alexandria from all sections of the empire, took an active part in the controversies of his time, and wrote much in defense of the common Christian faith. Thus eminently qualified to be a witness for the whole church, he affirms that "the four gospels, the last of which is John's, are the only undisputed ones in the whole church of God throughout the world." This is testimony not only that Origen himself received the gospel of John as genuine, but also that, towards the beginning of the 3d c., all the churches of Christendom so received it. IV. Clement of Alexandria lived from 220 back to about 165 A.D., and, besides traveling extensively in Italy, Greece, Egypt, and Asia, was a great Christian teacher at Alexandria. Concerning the gospels he says that "those of Matthew and Luke were written first; then Mark's, and last of all, John's." His testimony establishes the fact that John's gospel was in use among the churches of Christendom during the last quarter of the 2d century. V. The oldest known treatise against Christianity was written by Celsus not far from 170 A.D. "He studied the Christian doctrines profoundly, drawing his information from the Scriptures. It is undeniable that he knew John's gospel. Indeed, Keim has proved that the image of Christ which he composed for himself is taken in great part from John's conception and presentation of him. The whole Christological attitude of the church, as Celsus describes it, is John's. It follows from this that John's gospel was at that time a record of Christianity known by friend and foe." VI. Tertullian, who lived from about 240 back to about 160 A.D., testifies that "not only among the apostolic churches, but also among all the churches which are united with them in Christian fellowship, the gospel of Luke has been maintained from its first publication; and the same authority of the apostolic churches will uphold the other gospels which we have, in due succession, through them and according to their usage, I mean those of Matthew and John; although that which was published by Mark may also be maintained as Peter's, whose interpreter Mark was." VII. Irenæus, whose life extended from 202 back to 126 A.D., says that "John's gospel was the last of the four, was published at Ephesus by the disciple of the Lord who leaned on his breast, and declares the Redeemer's primary and glorious generation from the Father, 'In the beginning was the Word.'" VIII. The Coptic versions of the New Testament, in use probably at the beginning of the 3d c., the old Latin, used still earlier in the province of Africa, and the Syriac, made not later than the earlier part of the 2d c., all contain the gospel of John. And as only previously acknowledged books of Scripture would be translated as such, these versions prove that the gospel of John was generally acknowledged as his work as far back as the earlier part of the 2d century. IX. An additional testimony, covering about the same period, is furnished by the Muratorian fragment, a part of a treatise on the books of the New Testament named from its discoverer, and assigned by critics to the latter half of the 2d century. It places John's gospel last among the four which were then universally received by the churches as of canonical authority. X. Justin Martyr was the author of a dialogue with Trypho the Jew in defense of Christianity, and of two defenses presented to the emperor and senate, the earliest of which was written between 138 and 147 A.D. In these writings, addressed to unbelievers, he quotes, as authority for his statements concerning the life and teaching of Christ, certain works which, without naming the particular authors, he calls "memoirs," "memoirs made by the apostles," "memoirs, made by the apostles, which are called gospels," and "memoirs composed by the apostles of Christ and their followers." Concerning the use made by Christians of these books he says: "On the day called Sunday all who live in cities or in the country assemble in one place, and the memoirs by the apostles, or the writings of the prophets, are read as long as time permits. When the reader has finished, the president admonishes and exhorts to the imitation of these good things." The question whether these memoirs were our four gospels has, in these last days, been strenuously debated. That they were seems clear, because our four gospels, as has been shown, were at a somewhat later period universally received and read in the churches on Sundays, as the memoirs of Christ written by apostles and their followers; viz., by Matthew and John, by Mark, the follower of Peter, and Luke, the follower of Paul: and there are no traces of any others having been so received and read. But it is impossible that in Justin Martyr's time one set of such memoirs could have been universally received and read in the churches, and in half a century later a rival or different set take their place, without great and multiform evidence being left of collision and substitution. But of any such process there is no trace whatever. That John's gospel was one of those to which Justin referred is also proved by his quotations from it and allusions to it; some of which are here given. (1) He refers to Christ as the Logos in terms which John alone uses: "the Logos was made flesh;" "through him God created all things;" "he was the only begotten of the Father of the universe, having been begotten by him in a peculiar manner as his logos and power." (2) He cites words of John the Baptist, part of which John's gospel alone gives—"I am not the

Christ, but the voice of one crying." (3) As a reason why Christians considered baptism obligatory, Justin says: "For Christ also said, 'Except ye be born again, ye shall in no wise enter into the kingdom of heaven.'" But in John's gospel only is such a saying of Christ recorded. And with this he makes an explicit reference to the objection which John also ascribes to Nicodemus concerning the impossibility of a man being born a second time. (4) He says: "The Jews are justly upbraided by Christ as 'knowing neither the Father nor the Son.'" (5) He says, "Christ healed those who were blind from their birth." XI. The Gnostics as well as their opponents generally received John's gospel during the controversies carried on 120–30, giving it very forced interpretations so as to make it appear consistent with their doctrines. This fact is decisive proof that at this early period, within about a quarter of a century of the time when the gospel was probably written, its genuineness was fully established. XII. At this point we must take into account the certain truth that Christianity and numerous Christian churches existed before any of the gospels were written. The apostles, among whom John was conspicuous from the beginning, first preached and taught orally, thus making converts and founding churches. In this way the churches generally had become well acquainted with the apostolic teaching, and were accurate judges of what professed to be in harmony with it, before the gospels appeared. This explains the fact that the publication of them produced no commotion and excited no feeling except satisfaction with having in permanent form that which was loved so much and known so well. It explains also the fact that within so short a time after John's gospel was written it was widely diffused and generally received. The transition from the spoken to the written excited no debate, and left no traces of its having been made, except the almost simultaneous presence of the book itself in all parts of Christendom.

The great design of John's gospel he has himself stated—"These are written that ye might believe that Jesus is the Christ, the Son of God; and that, believing, ye might have life through his name." In prosecution of this design, it (1) declares the existence, in the beginning, with God and as God, of the logos, who is the source of light and life, by whom all things were created; and who became flesh, dwelling among men, manifesting to chosen witnesses his glory in the fullness of grace and truth; (2) gives a statement of the mission of John the Baptist, and of his testimony to Jesus as the Messiah, the Lamb of God to take away sins, and the Son of God in whom all men are called on to believe; (3) makes prominent the portion of Christ's ministry which was fulfilled in Jerusalem—chiefly at the national feasts, yet clearly marks also his journeys to and from Galilee, where the larger portion of his work was performed; (4) records the faith of his first disciples in him as the promised Messiah; (5) gives an account of his first miracles in Galilee; of the symbolic cleansing of the temple with which his public ministry in Jerusalem began; of his interview with Nicodemus, to whom he declared the necessity of regeneration, the design of the atonement, and the love of God in sending his Son into the world; of his conversation with the woman of Samaria, to whom he proved his Messiahship by an omniscient judgment concerning herself, and made God known as the object of spiritual worship to be offered henceforth by all men everywhere; of his healing the man at Bethesda, followed by his claim of equality with God, and of power to give spiritual life, to raise all the dead, and to judge the world; of his feeding 5,000 men with five loaves; of his proclaiming himself as the bread of life, the living water, the light of the world, the giver of liberty, and the deliverer from death; of his bestowing sight on a man who had been born blind; of his announcing himself as the good shepherd, who, by laying down his life for his sheep, would give them eternal life; and of his raising Lazarus from the grave, followed by his triumphal entrance into Jerusalem. From this point the gospel gives the private communion of the Savior with the apostles at the last passover; his foretelling that Judas Iscariot would betray him, and Simon Peter deny him; his words of comfort, peace, and deliverance, followed by the promise to send the Holy Spirit as an advocate, instructor, and guide; his intercession with the Father in behalf of his disciples through all time; his apprehension and arraignment before the Jewish council and the Roman governor; his crucifixion, burial, and resurrection from the dead, interviews with his disciples, and final instructions to them. This gospel diffuses the glory of the Son of God over all his incarnate life upon earth. And as the culmination of the external proof of its genuineness is the book itself present in the churches through all the centuries since it was written, so the effulgence of the internal proof is the Divine being, character, and life exhibited through it all.

JOHN THE BAPTIST, the forerunner of Christ, was the son of the priest Zacharias and Elizabeth, the cousin of Mary, the mother of our Lord. John and Christ were therefore second cousins. The wonderful circumstances attending the conception and birth of the former are recorded in the 1st chapter of St. Luke's gospel. After a life devoted to preparing his countrymen for the coming of the Messiah, he was thrown into prison, and afterwards executed by Herod Antipas. John's followers existed as a separate body till long after the spread of Christianity, and a sect still exists in the east professing to be his disciples.—John the Baptist was, from an early date, regarded in England as the patron saint of the common people, and on this account, apparently, great masonic festivals are held on St. John's day, the day dedicated to him, which is the 24th of June.

JOHN THE BAPTIST, was of the priestly race by both parents, his father, Zecharias, being a priest of the course of Abia or Abijah (I. Chron. xxiv. 10), and his mother, Elizabeth, being of the daughters of Aaron (Luke i. 5). His coming as the precursor of the Christ was foretold centuries before his birth by Isaiah as the one crying in the wilderness, and by Malachi as the messenger to prepare the way before him. His birth was foretold by an angel, who announced also what his character and office would be as the forerunner of the Christ and the reformer of the nation. On the 8th day the child was brought, in conformity with the law of Moses, to the priest for circumcision. All that we know of John for 30 years, or from his birth to the beginning of his ministry, is contained in one verse—"The child grew and waxed strong in spirit, and was in the deserts till the day of his showing to Israel." John was ordained to be a Nazarite from his birth (Luke i. 15), drinking neither wine nor strong drink, implying that he should abstain from worldly pleasures, and live a life of self-denial. In accordance with this he retired to the wild and thinly peopled region west of the Dead sea, and, by self-discipline and communion with God, prepared himself for the work to which he had been appointed. When he came forth he was dressed in the costume of one of the old prophets, with a garment woven of camel's hair and fastened to the body by a leathern girdle. His food was such as was found in the desert—locusts and wild honey. Thus prepared, he began his ministry, calling upon the people to repent in order to share in the blessings of the kingdom of God, near at hand. Multitudes were attracted by his fervor, his reputation for extraordinary sanctity, and the prevailing belief that some great one was about to appear; and many of every class came forward to confess their sins and be baptized. His baptism was a visible token of that repentance which was essential to forgiveness, but he assured his hearers that One mightier than he would baptize with the Holy Ghost. John instructed his disciples also in moral and religious duties, as fasting and prayer. But soon after he had given his testimony to the Messiah his ministry was brought to a close. The king, Herod Antipas, was living in adultery with the wife of his brother Philip, and when John reproved him for his sin, Herod put him in prison. The prison was the castle of Machærus, a fortress on the eastern side of the Dead sea. Herodias, enraged at the rebuke of John, determined that he should die. At Machærus, which was the palace of Herod as well as a fortress, was held a court-festival in honor of the king's birthday. The daughter of Herodias danced before the company, and so delighted was Herod that he promised to give her whatever she should ask. Prompted by her mother, she asked for the head of John the Baptist. Instructed by Herod, an officer of the guard slew him in the prison. His death is supposed to have occurred just before the third passover in the course of our Lord's ministry, A.D. 28. Herod doubtless regarded him as an extraordinary person, for when he heard of the miracles of Christ he ascribed them to John, who, he said, had risen from the dead. John's disciples took the body of John and buried it, and ecclesiastical history records the honors paid to his memory. He is mentioned with great honor in the Koran under the name of Jahja.

JOHN, surnamed LACKLAND, king of England, and the youngest of the five sons of Henry II. by his wife, Eleanor of Guienne, was b. at Oxford, Dec. 24, 1166. His father having obtained a bull from the pope authorizing him to invest one of his sons with the lordship of Ireland, John was appointed in a council held at Oxford in 1178, and in Mar., 1185, he went over to take the reins of government, but governed so badly that he was recalled in the following December. John latterly united with his brothers in their rebellions against their father, and it was the sudden communication of the news of his having joined his brother Richard's rebellion that caused the death of Henry.

When Richard I. succeeded to the crown, he conferred upon his young brother earldoms which amounted to nearly one-third of the kingdom. This did not, however, prevent John endeavoring to seize the crown during Richard's captivity in Austria. John was, however, pardoned, and treated with great clemency, and is said to have been nominated his successor by his brother on his death-bed. John hastened, at his brother's death, to obtain the support of the continental barons, and then started for England, and was crowned at Westminster, May 26, 1199. Arthur, the son of his elder brother Geoffrey, was lineally the rightful heir to the crown, but at this time the law of primogeniture was but imperfectly established. The claims of Arthur were supported by Anjou and the king of France, but John bought off the latter influence. John now obtained a divorce from his first wife, Hadwisa of Gloucester, and married Isabella of Angoulême. In the war which ensued Arthur, who was again assisted by France, was taken prisoner, and confined in the castle of Rouen, where there is every reason to believe that he was privately put to death; but the English monarch lost Normandy, Touraine, Maine, and Anjou.

John now quarreled with the pope, and the kingdom was placed under an interdict; while John, in return, confiscated the property of the clergy who obeyed the interdict, and banished the bishops. Otherwise, too, he displayed considerable activity. He compelled William, king of Scotland, who had joined his enemies, to do him homage (1209), put down rebellion in Ireland (1210), and subdued Llewellyn, the independent prince of Wales (1212). The pope now, in 1213, solemnly deposed John, and absolved his subjects from their allegiance, and commissioned Philippe Auguste to execute his sentence. John, denounced by the church, and hated for his cruelty and tyranny by

his subjects, found his position untenable, and was compelled to make abject submission to Rome, and hold his kingdom as a fief of the papacy. Philippe proceeded with his invasion scheme, though no longer approved by Rome; but the French fleet was totally defeated in the harbor of Damme, 300 of their vessels being captured, and above 100 destroyed. Subsequent events, however, proved more favorable to France, and at length the English barons saw the opportunity to end the tyranny of John: they drew up a petition, which was rejected by the king, and this was the signal for war. The army of the barons assembled at Stamford, and marched to London; they met the king at Runnymede, and on June 15, 1215, was signed the great charter (Magna Charta), the basis of the English constitution. The pope soon after annulled the charter, and the war broke out again. The barons now called over the dauphin of France to be their leader, and Louis landed at Sandwich, May 30, 1216. In attempting to cross the Wash John lost his regalia and treasures; was taken ill, and died at Newark castle, Oct. 19, 1216, in the 49th year of his age.

JOHN II., surnamed THE GOOD (Le Bon), 1319–64; King of France, the second of the Valois family; succeeded his father, Philip VI. of Valois, in 1350. He commenced his reign by acts of despotism and cruelty. England being appealed to by the friends of those whom he had slain, invaded France, when John was defeated by Edward the black prince at Poictiers in 1356, and carried to Bordeaux and then to London, where he was a prisoner for three years. His ransom, by a treaty with Edward III. at Bretigny, was the surrender to the English of eight of the best French provinces and the payment of 3,000,000 crowns in gold. He left his son, the duke of Anjou, in London as a hostage for the fulfillment of the treaty, who, having escaped in violation of his parole, John voluntarily returned as a prisoner in 1364 to London, where he suddenly died.

JOHN II. (CASIMIR), 1609–72; King of Poland; younger son of Sigismund III. Having embarked for Spain for the purpose of persuading Philip III. to form a league against France, he was shipwrecked, and imprisoned for two years at Vincennes. Being released on a promise given by his brother, king of Portugal, never to wage war against France, he traveled through western Europe, became a Jesuit, and was made cardinal by Innocent X. Returning to Poland he succeeded his brother Ladislas in 1648, and married his widow, Maria Luisa Gonzaga. During his reign Poland was attacked by Russia and Sweden, resulting in wars which terminated in the cession of several provinces on the Baltic and the Dnieper. His wife intriguing for the son of the prince of Condé as successor to the throne, and the nobles contending among themselves, he abdicated at the diet of Warsaw, Sept. 16, 1668, and retired to France, where he was kindly received by Louis XIV. When he died his heart was interred in St. Germain des Prés, and his body taken to the cathedral of Cracow in 1676.

JOHN III. (JOHN SOBIESKI), King of Poland, 1674–96; one of the greatest warriors of the 17th c.; was b. in 1624, or, according to others, in 1629, and educated with the utmost care, along with his brother Mark, by his father, James Sobieski, castellan of Cracow, a man of virtuous character and warlike spirit. The brothers traveled in France, England, Italy, and Germany. Their father's death recalled them home in 1648. The Poles were defeated by the Russians in the battle of Pilawiecz. The Sobieskis took up arms to restore the fortunes of their country. Mark fell in battle on the banks of the Bog; John distinguished himself by his valor, and became the admiration of his countrymen and the dread of the Tartars and Cossacks. He received the highest military dignities and appointments, and on Nov. 11, 1673, defeated the Turks in the great battle of Choczim, in which they lost 28,000 men; after which he was, May 21, 1674, unanimously elected king of Poland, and was crowned in Cracow along with his wife, Maria Casimir Louisa, daughter of the marquis Lagrange d'Arquien, and widow of the woiwode John Zamoiski. When the Turks besieged Vienna in 1683 John hastened thither with 20,000 Poles, and, along with the German auxiliaries who had also come up, raised the siege by the victory of Sept. 12 of that year. In this battle he took the banner of Mohammed, which he sent to the pope. On his entrance into Vienna he was received with unbounded enthusiasm by the inhabitants. His subsequent undertakings against the Turks were not equally successful. He died of apoplexy June 17, 1696. John Sobieski was not only a statesman and warrior, but a lover of science, and a man of gentle disposition and agreeable manners; but his constant wars prevented that attention to the internal condition of Poland which its critical situation urgently required, and this oversight on his part helped to hasten the downfall of Poland.

JOHN I., JOAN "the Great," 1357–1433; King of Portugal; b. Lisbon; son of Peter I. At the death of his brother Ferdinand in 1383 he became regent, and seized the throne in violation of the rights of the infanta Beatrice. A war followed, resulting in favor of John. In 1415 he took Ceuta from the Moors. The islands of Madeira, cape Verde, the Azores, and the Canaries were discovered in his reign.

JOHN II., JOAN "the Perfect," 1455–95; King of Portugal; b. Lisbon; married in 1471 Leonora of Lancaster; succeeded his father, Alphonso V., Aug. 29, 1481. He put to death for conspiracy the dukes of Braganza and Viseo, 1483–84. During his reign B. Dias discovered the cape of Good Hope, Da Gama visited India, and the African coasts were explored by distinguished navigators.

JOHN IV., Joan, 1604–56; King of Portugal; b. Villaviciosa; duke of Braganza; in 1640 expelled the Spanish usurpers and succeeded to the throne of Portugal. During his reign he was constantly at war with Spain.

JOHN VI., Joan, 1767–1826; King of Portugal; b. Lisbon; in 1785 married Charlotte (Carlota), infanta of Spain; in 1788 received the title of prince of Brazil; in consequence of his mother's illness, governed the kingdom of Portugal in 1789; was regent in 1799; on the approach of the French army in 1807 removed his court to Brazil; became king on the death of his mother in 1816; returned to Portugal in 1821; recognized the independence of Brazil in 1825.

JOHN I., Juan, 1358–90; King of Castile and Leon; b. Epila; succeeded to the throne on the death of his father, Henry II., in 1379, at the age of 21. To defeat the schemes of John of Gaunt, duke of Lancaster, who had assumed the title of king of Castile, and of Ferdinand of Portugal, he attacked Portugal for the purpose of placing his son on the throne of that kingdom, but was unsuccessful. He made peace by marrying Beatrice, 10 years of age, daughter and heiress of the king of Portugal. Ferdinand dying, John again made war upon Portugal in support of Beatrice against John I., king of that country, but failed on account of the prevalence of yellow-fever. Subsequently, the duke invading Castile, peace was made by the marriage of his daughter to prince Henry.

JOHN, Baptist Joseph Fabian Sebastian, Archduke of Austria, a distinguished Austrian prince and general, was born Jan. 20, 1782, and was the sixth son of the emperor Leopold II. His mother was the infanta Maria Louisa, daughter of Charles III. of Spain. He early gave proof of considerable talent for military affairs; and in 1800 he received the command of the defeated Austrian army, formerly under Kray. His military career was not brilliant. He was defeated at Hohenlinden in 1800, and at Austerlitz in 1805. In the war of 1809 he advanced with an Austrian army into Italy, defeated the viceroy Eugène at Sacile, and made his way as far as the Adige when the reverses of the Austrian forces at Landshut, Eckmühl, and Ratisbon compelled him to retire. His love of natural science, for which he manifested an early predilection, continued undiminished amidst all the vicissitudes of his life; and Austria is indebted to him for many valuable scientific institutions and enterprises. Living in political retirement, he showed a warm interest in every improvement and public work, and became exceedingly popular; so that when the German national congress assembled after the commotions of 1848, he was called by a great majority of voices, on June 29 of that year, to be vicar or regent of the Germanic empire. The fall of Metternich had also, in the mean time, released him from his political isolation in Austria; and the emperor Ferdinand had placed him at the head of affairs there, and intrusted to him the opening of a constitutional assembly in Vienna. In his high office as regent the archduke acted on strictly constitutional principles; but the progress of events being unfavorable to the Austrian interests, he resigned his office Dec. 20, 1849, and returned to Grätz, where he lived, as formerly, in retirement till his death, May 10, 1859.

His marriage was one of an unusually romantic kind. Late on a Jan. evening in 1827, he had occasion to require the services of the postmaster of Aussee, a mountain-village in the vicinity of Grätz. The postmaster was from home; but his daughter, Anna Plochel, volunteered to drive him over the hill to his destination. The conversation and spirit of this maiden seem to have charmed the archduke, and within three weeks he married her. The titles of countess of Meran and baroness of Brandhof were subsequently conferred upon this lady. See Morganatic Marriage.

JOHN the Constant, 1467–1532; Elector of Saxony; succeeded his brother, Frederick the wise, in 1525. In alliance with Philip of Hesse and other states he zealously espoused the Protestant reformation, and caused the Augsburg confession to be proclaimed in the diet held in that city in 1530.

JOHN the Fearless, 1371–1419; Duke of Burgundy; son of Philip the bold of France. At the age of 25 he joined the king of Hungary against the Turks, and was made prisoner at the battle of Nicopolis, but for the great courage which he had displayed the sultan Bajazet liberated him, and gave him the surname of the fearless. On his return to France he succeeded his father in 1404 as duke of Burgundy, but was opposed by the queen and the duke of Orleans, his rival. In 1407 he instigated the assassination of the duke, and soon obtained almost supreme power in the kingdom. This was followed by a civil war, in which John was aided by Henry IV. of England. In 1416 he formed a secret alliance with Henry V. of England, invaded France, and captured the king in 1418, but was treacherously murdered in 1419 at the instigation of the dauphin, son of Charles VI. He was succeeded by his son, Philip the good.

JOHN, Franz von, Baron, b. Bruck, Lower Austria, 1815; was captain under field-marshal Radetzky in the Italian revolution of 1848, occupied imported military positions, was appointed minister of war, and in 1874 was master of the ordnance and chief of staff of the whole army.

JOHN of Beverley. See Beverley.

JOHN of Leyden (properly, John Bockelson or Bockold) was b. at Leyden in 1510. He was the son of a bailiff in the Hague, and of a Westphalian bondwoman.

He wandered about for some time as a journeyman tailor, and then settled in Leyden, but was fonder of amusements than of his trade. He possessed some poetic genius, and was noted for his abilities as an actor. Adopting the opinions of the Anabaptists (q.v.), he became one of their wandering prophets. In 1533 he came to Münster, was the chief supporter of Matthiesen or Matthys there, and when Matthiesen lost his life in 1534, became his successor. He set aside the ancient constitution of the city, set up in Münster "the kingdom of Zion," appointed judges, and applied in an extravagant manner the principles of the Old Testament theocracy. He himself became king of Zion. It is impossible to account for his conduct, and the extraordinary influence which he exercised, without the supposition of real fanaticism; but sensuality, vanity, and bloodthirstiness were intimately combined with it. He introduced polygamy, and displayed a great love of kingly pomp. The city was the scene of horrid excesses. In June, 1535, it was taken by the bishop of Münster. John and his chief accomplices suffered death with circumstances of fearful cruelty (Jan. 26, 1536), and his body was suspended in a cage from a high tower. He attempted to save his life by confession and submission.

JOHN OF NEPOMUK (more properly, POMUK), a popular Bohemian saint of the Catholic church, and honored as a martyr of the inviolability of the seal of confession. He was born at Pomuk, a village in the district of Klatau, about the middle of the 14th century. Having entered into orders he rose rapidly to distinction, being created a canon of the cathedral of Prague, and eventually vicar-general of the diocese. The queen Sophia, the second wife of Wenzel or Wenceslaus IV., having selected him for her confessor, Wenceslaus, himself a man of most dissolute life, conceiving suspicions of her virtue, required of John to reveal to him what he knew of her life from the confessions which she had made to him. John steadfastly refused, and the king resolved to be revenged for the refusal. An opportunity occurred soon afterwards, when the monks of the Benedictine abbey of Kladran having elected an abbot, in opposition to the design of the king, who wished to bestow it upon one of his own dissolute favorites, John, as vicar-general, at once confirmed the election. Wenceslaus, having first put him to the torture, at which he himself personally presided, had him tied hand and foot, and flung, already half dead from the rack, into the Moldau, Mar., 1393. His body, according to the tradition, being discovered by a miraculous light which issued from it, was taken up, and buried with the greatest honor. His memory was cherished with peculiar affection in his native country, and he was eventually canonized as a saint of the Roman Catholic church, his feast being fixed for Mar. 20. By some historians, two distinct personages of the same name are enumerated: one, the martyr of the confessional seal; the other, of his resistance to the simoniacal tyranny of Wenceslaus; but the identity of the two is well sustained by Palacky, *Geschichte von Böhmen*, iii. 62.

JOHN OF SALISBURY, 1120–82; b. Salisbury. In 1136 he went to France, attended the lectures of the famous Abelard, and remained there for several years, studying scholastic logic, grammar, the classics, and theology. He was sent on important missions to popes Eugene III. and Adrian IV., by whom he was received with great honor. When Thomas à Becket became archbishop of Canterbury, he was made his secretary, was with him in his exile in France, returned with him to England, and witnessed his death. In 1176 he was appointed bishop of Chartres. His greatest works are: *Polycraticus sive de nugis Curialium et Vestigiis Philosophorum;* libri octo; a work of great erudition and caustic satire on the follies of courtiers, etc.; and *Metalogicus*, a defense of the studies of the schools against the sneers of the ignorant. His *Vita ac Passio S. Thomæ*, and his letters, numbering 302, are interesting. His complete works, in 5 vols., were published in 1848. He is described as an elegant Latin poet, an impressive orator, and the most learned man of his time.

JOHN the PARRICIDE, commonly called JOHN OF SWABIA, son of Rudolf II., and grandson of Rudolf I. of Austria, was b. in 1289. On attaining his majority he applied to his uncle, Albert I. of Austria, to resign to him the whole or a part of his patrimony, which consisted of Kyburg and some estates in Swabia; but this Albert refused to do. After making many other abortive attempts to gain his end John formed a conspiracy with others who had cause to complain of Albert's rapacity, and determined to assassinate the emperor; seizing the opportunity when Albert was riding alone, on the bank of the Reuss, near the castle of Hapsburg, they attacked and murdered him, May 1, 1308. The conspirators fled in different directions, John betaking himself to Italy, where he led a wandering life and died in obscurity.

JOHN, PRESTER ("Priest John"), the supposed Christian king and priest of a mediæval kingdom in the interior of Asia, the locality of which was vague and undefined. In the 11th and 12th centuries, the Nestorian missionaries penetrated into eastern Asia, and made many converts among the Keraeit or Krit Tartars, including, according to report, the khan or sovereign of the tribe, Ung (or Ungh) Khan, who resided at Karakorum, and to whom the afterwards celebrated Genghis Khan was tributary. This name the Syrian missionaries translated by analogy with their own language, converting *Ung* into "Jachanan" or "John," and rendering *Khan* by "priest.". In their reports to the Christians of the West, accordingly, their royal convert figured as at once a priest and the sovereign of a rich and magnificent kingdom. Genghis Khan having

thrown off his allegiance, a war ensued, which ended in the defeat and death of Ung Khan in 1202; but the tales of his piety and magnificence long survived, and not only furnished the material of numberless mediæval legends (which may be read in Assemani's *Bibliotheca Orientalis,* III. ii. 484), but supplied the occasion of several of those missionary expeditions from western Christendom, to which we owe almost all our knowledge of mediæval eastern geography. The reports regarding Ung Khan, carried to Europe by the Armenian embassy to Eugene III., created a most profound impression; and the letters addressed in his name, but drawn up by the Nestorian missionaries, to the pope, to the kings of France and Portugal, and to the Greek emperor, impressed all with a lively hope of the speedy extension of the gospel in a region hitherto regarded as hopelessly lost to Christianity. They are printed in Assemani's *Bibliotheca Orientalis.* The earliest mention of Prester John is in the narrative of the Franciscan father, John Carpini, who was sent by pope Innocent IV. to the court of Batû Khan of Kiptchak, the grandson of Genghis Khan. Father Carpini supposed that Prester John's kingdom lay still further to the east, but he did not prosecute the search. This was reserved for a member of the same order, father Rubruquis, who was sent as a missionary into Tartary by St. Louis, and having reached the camp of Batû Khan, was by him sent forward to Karakorum, the seat of the supposed Prester John. He failed, however, of his hope of finding such a personage, the khagan of Karakorum, Mangû, being still an unbeliever; and his intercourse with the Nestorian missionaries, whom he found established there, satisfied him that the accounts were grievously exaggerated. His narrative, which is printed in Purchas's *Collection,* is one of the most interesting among those of the mediæval travelers. Under the same vague notion of the existence of a Christian prince and a Christian kingdom in the east, the Portuguese sought for traces of Prester John in their newly-acquired Indian territory in the 15th century. A similar notion prevailed as to the Christian kingdom of Abyssinia, which, in the hope of finding Prester John, was visited so late as the reign of John II. of Portugal (148[illegible]-95) by Pedro Covilham and Alfonzo di Payva, the former of whom married and settled in the country. See an essay on this head in Ritter's *Erdkunde;* also Oppert's *Der Priester Johannes* (1864, 2d ed. 1870).

JOHN C. GREEN SCHOOL OF SCIENCE. See College of New Jersey.

JOHN, EPISTLES OF (John, *ante*), three in number. The first and longest is quoted, as an undoubted work of the apostle John, by Polycarp, who in mature age was, about 100 A.D., made bishop of Smyrna, and was a disciple of John, well acquainted with his character, doctrine, and writings. It is ascribed to John by Papias also, who, contemporary with him and bishop of Hieropolis, received his doctrine, according to his own statement, from the living voice of followers of the apostles. It is contained also in the Syriac version of the New Testament, made not later than the early part of the 2d c., in all the other ancient versions, and in all extant catalogues of canonical books. It is acknowledged by Irenæus, Clement of Alexandria, Tertullian, Origen, Cyprian, Eusebius, Athanasius, and other ancient ecclesiastical writers. "Against this weight of historical evidence," says Olshausen, "nothing can be effected by the mere conjectures of modern times; and at present all theologians are perfectly agreed in the acknowledgment of this precious relic of the beloved disciple." Its subject-matter may be divided into four sections: I. 1–7, recapitulates the personal testimony of the apostles to the divinity and incarnation of the Lord Jesus; and declares that the union of faith and holiness is necessary to the enjoyment of fellowship with God; II. i. 8–ii. 17, asserts the sinfulness of all men; declares the divinely provided method of forgiveness through confession and faith in the atonement and intercession of Christ; specifies obedience to God and love to men as essential marks of true faith; gives counsel to the old and young; and warns Christians against love of worldly and transient things; III. ii. 18–29, affirms that all who deny the Messiahship of Jesus are anti-christs; declares that true Christians are anointed of God so that they can distinguish truth from error; and exhorts those who profess the name of Christ to abide in him, so that, at his coming, they and the apostle himself may not be ashamed; IV. iii.–v., sets forth the great privileges of true believers as the children of God; their consequent happiness and duties; and the various marks by which Christians and genuine Christianity may be distinguished from the children and doctrines of the evil one. The question concerning the genuineness of the 7th verse of chapter v. on the three heavenly witnesses has been strenuously debated by biblical students during four centuries. The preponderance of evidence is that the passage was not in the original, or in any ancient Greek manuscript; but was interpolated into Latin versions and a few late and Latinized Greek manuscripts. It is now consequently rejected by the great majority of biblical critics.

That the external evidence for the genuineness of the second and third epistles is less abundant and decisive than that for the first is accounted for by the fact that they are very brief, and are addressed to individuals. They would, therefore, naturally be read by fewer persons, and be circulated more slowly. Yet there is uncontradicted external evidence sufficient to establish their genuineness as writings of John. Irenæus quotes a passage of the second epistle; Clement of Alexandria wrote a commentary on it, and probably also on the third; Origen says that the apostle John left a second and third epistle; which, however, he adds, were not universally accepted as genuine. Dionysius

and all later Alexandrian writers mention them as productions of the same John that wrote the first epistle and the gospel. Ephrem Syrus, in the 4th c., speaks of them as John's; and in the 5th c. they were almost universally received. The internal evidence for their genuineness is strong. Many of the sentiments contained in them are found substantially in the first epistle; the style, diction, and tone of thought in all three are similar; and the zeal expressed by the writer for the truth agrees well with the boldness attributed to John from the beginning.

The second epistle, addressed to the elect lady, or the elect Kyria, and her children, congratulates her on their consistent Christian conduct; exhorts them all to cherish genuine love founded on faith and obedience; and warns them against giving aid or countenance to false teachers by receiving them into their house or even by extending to them friendly greeting.

The third epistle is addressed to Gaius, whom it characterizes as beloved, spiritually minded, consistent, and kind. This character agrees well with that of Gaius of Corinth, whom Paul commends as hospitable to him and to the whole church. He, however, was converted under Paul's ministry, while John seems to regard the Gaius to whom he wrote as one of his children. The object of the epistle was to acknowledge the kindness which Gaius had already shown to the strangers who were traveling as Christian missionaries, and to ask his continued help for them on their journey in a manner suitable to their character as God's servants, who, for Christ's sake, had renounced all resources outside of the church. John says also that he had written, probably on this subject, to the church; but that Diotrephes, in his love of pre-eminence, would not give heed to his request, and would not allow other members of the church to comply with it. From what is said of Diotrephes it is plain that he was an arbitrary and ambitious man—the type of a large class—who had, either formally or practically, attained the chief place in the church. The apostle, promising to attend to his case when he visited the church, exhorts Gaius to follow good and not bad examples, and commends to him Demetrius as well known to the apostle himself, and of good report among all the brethren.

JOHN FREDERICK, the Magnanimous, 1503–54; Elector of Saxony; b. Torgau; was the son of John the constant, whom on his death in 1532 he succeeded in the electorate in conjunction with his brother Ernest. He officially sanctioned the reformation in 1553, and led the Protestant league of Schmalkalden against Charles V. He was taken prisoner at Mühlberg and condemned to death, but released at the intercession of his cousin Maurice of Saxony. On the death of Ernest in 1553 he became sole elector.

JOHN GEORGE I., 1585–1656; Elector of Saxony, succeeding his brother, Christian II., in 1611. During the thirty years' war his course was vacillating, sometimes favoring the emperor, sometimes the Protestant allies. In 1635 he made peace with the emperor Ferdinand II.

JOHN or JOHANN, Nepomuk Maria Joseph, 1801–73; King of Saxony; b. Dresden; youngest son of duke Maximilian of Saxony; was president of the ministry of finance, from which he retired in 1831; commander of the national guard, 1831–46. On the death of his brother, Frederick Augustus II., Aug. 9, 1854, he became king. In the war of 1866 he sided with Austria against the western powers, and in the battle of Koniggrätz fought against the Prussians who had entered Saxony. Peace being concluded, king John agreed to pay a large sum to Prussia, and to cede the fortress of Königstein. Saxony afterwards joined the North German confederation, and was conspicuous in the Franco-Prussian war of 1870–71. John was fond of antiquarian research. In 1838 he visited Italy, and published a German translation of the *Divina Commedia* of Dante with valuable notes. In 1824 he was elected president of the antiquarian society of Saxony, and in 1852–53 was president of the German society of history and antiquities. He left manuscript translations of 70 English poems.

JOHN OF AUSTRIA, or **DON JUAN D'AUSTRIA,** was a natural son of the emperor Charles V., and was born at Regensburg, on Feb. 24, 1546. It is uncertain who his mother was. He was early brought to Spain, and after the death of his father he was acknowledged by his half-brother, Philip II.; honors and an annual allowance were bestowed upon him, and he was educated along with the prince of Parma and the infant Don Carlos. He was intended for the church; but his own inclination was for military employment, and in 1570 he received the command of an army sent against the rebellious Moors in Granada, whom he completely rooted out of the country—signalizing himself at once by valor and by cruelty. In 1571 he was appointed to the command of a maritime expedition—in which the forces of Spain, the pope, and Venice were united against the Turks—and defeated the Turks in a great battle near Lepanto (Oct. 7). Discord breaking out among the allies, Don Juan separated himself from the rest, took Tunis, and conceived the design of forming a kingdom for himself in the n. of Africa. But Philip, jealous of this design, sent him to Milan, to observe the Genoese; and afterwards, in 1576, as viceroy to the Netherlands. In this capacity he sought to win the favor of the people by mildness; but being left unsupported by Philip, he was hard

pressed for a time, till the arrival of the prince of Parma with troops enabled him to restore the fortunes of Spain by the victory of Gemblours over William the silent in 1577. But Philip was now apprehensive that Don Juan might make himself king of the Netherlands; and the untimely death of the latter in his intrenched camp at Namur, Oct. 1, 1578, was not without suspicion of poison.—See Dusmenil's *Histoire*, and Havemann's *Leben* (Gotha, 1865) of John; also Sir W. Stirling-Maxwell's work (1883).

JOHN OF GAUNT, or OF GHENT, 1339–99; Duke of Lancaster; b. Ghent; son of Edward III. In the French wars he served with great bravery under his brother, Edward the black prince. In 1370 he married Constance, the daughter of Peter the cruel, king of Castile and Leon, and on the death of Peter claimed the sovereignty of those kingdoms, but subsequently giving his daughter in marriage to the heir-apparent, he relinquished his claims. His son, surnamed Bolingbroke, became king of England under the title of Henry IV.

JOHN O' GROAT'S HOUSE (or, more correctly, it would seem, JOHNNY GROAT'S HOUSE), on Dungansby head, the north-eastern extremity of the mainland of Scotland, has been long widely known as marking one of the limits of that country, as in Burns's line:

Frae Maidenkirk to Johnny Groat's.

It stood on the beach at the mouth of the Pentland firth, and was probably built for the reception of travelers crossing the ferry to the Orkneys. Tradition gives a more romantic origin. In the reign of king James IV. (1488–1513), three brothers—Malcolm, Gavin, and John Groot or Grot—supposed to be Hollanders, settling in Caithness, acquired the lands of Warse and Dungansby. When their descendants had so multiplied that they were eight families, disputes arose as to precedency at a yearly festival which they were wont to keep. John Groat settled the controversy by building an eight-sided house, with a door and a window in each side, and an eight-sided table within, so that the head of each of the eight families of Groats might enter by his own door, and sit at his own head of the table. Whatever credit may be due to this legend, there can be no doubt as to the existence of John Grot. In the year 1496 "John Grot, son of Hugh Grot," had a grant of a penny-land in Dungansby from William, earl of Caithness. In 1525 "John Grot in Dongasby," as his name is written, chamberlain and bailie of John, earl of Caithness, gave seisin to the Trinity friars of Aberdeen, of a yearly payment from the island of Stroma, in the Pentland firth. He died soon afterwards, and was succeeded by his son William, or his grandson John. In 1540 there was a payment from the Scottish treasury of £20 "to John Grote, for freight of his ship sent by the queen's grace, from St. Andrews to Orkney, to the king's grace with writings." In 1547 John Grot had a pardon from queen Mary for helping the earl of Caithness to storm the earl Marischal's castle of Akirgill. About 1741 Malcolm Groat sold his lands in Dungansby, with the ferry-house, to William Sinclair of Freswick. The family of Groat still exists; but a small green knoll is all that now remains of John o' Groat's house. The shell *Cypræa Europæa*, which abounds in the neighborhood, has received the name of "John o' Groat's bucky."

JOHNS, or JOHN'S, ST. (*ante*); geographical. See SAINT JOHN'S.

JOHN, SAINT (*ante*). See SAINT JOHN.

JOHN'S COLLEGE, or the College of St. John the Baptist, Oxford, succeeded an older institution, founded by archbishop Chichele in 1456, for monks of the Cistercian order. Sir Thomas White procured a license from king Philip and queen Mary, and in 1555 founded a college, dedicated "to the honor of God, the Virgin Mary, and St. John the Baptist," on the site of archbishop's Chichele's college. The foundation consists of a president, 50 fellows and scholars, and a choir. Six of the fellowships are founders' kin; two from Coventry, two from Bristol, two from Reading, and one from Tunbridge schools; all the rest are from Merchant Taylor's school. In 1854 four fellowships were added by the will of Dudley Fereday, esquire. These are open, with a preference, however, first, to founder's kin, and second, to natives of Staffordshire. This college presents to 30 benefices. In 1879 there were above 500 names on the books. The arrangements of this college were not altered by the commissioners under 17 and 18 Vict. 81. The commissioners of 1852, indeed, proposed extensive changes, which the commissioners under the act were disposed to carry out, but the college succeeded in baffling their endeavors. Similar changes, however, to those recommended by the commissioners—involving, among other points, the throwing open of 18 fellowships—have been subsequently introduced by the authority of the privy council.

JOHN SCOTUS. See ERIGENA, *ante*.

JOHNS HOPKINS UNIVERSITY, in Baltimore, Md., began its instructions in 1876. It was established by the liberality of Johns Hopkins, a merchant of Baltimore, who gave a fund of about $7,000,000 for the establishment of a university and a hospital. The gifts are free from ecclesiastical and political control, and free also from burdensome conditions. It is not intended to use any part of the capital for buildings. The hospital is now being constructed; the university occupies a temporary site, near

the Peabody institute. There were, in 1883-84, 43 instructors of various grades and 249 students. There are 70 fellowships open to students from any part of the country, and a larger number of scholarships, a part of them giving free tuition, open to young men from Maryland, Virginia, North Carolina, and the District of Columbia, and a part of them open for competition to any young men. In the year 1884, 115 students had already received an academic degree. Graduate, matriculate, and non-matriculate students are received and instructed according to their various requirements. The degrees of doctor of philosophy and bachelor of arts are conferred upon students who pass the requisite examinations. Equal care is bestowed upon the scientific and literary departments. Instruction is given in Sanskrit, Greek, Latin, French, German, and English, as well as in the Semitic languages; logic, philosophy, history, and political science. The higher mathematics are taught far beyond the line of the ordinary college course. In the chemical, physical, and biological laboratories, ample arrangements have been made for instruction and investigation. The scientific apparatus has cost nearly $58,000; the library about $49,000; and additions are constantly made to the books and instruments. More than 250 literary and scientific periodicals are taken in the reading-room, which is open to the students from 9 A.M. to 10 P.M. Courses of lectures by resident and non-resident professors are open to the public during a considerable portion of every year. Classes for teachers in physiology and zoology (both involving the constant use of the microscope), in early English and in mathematics, have been taught on Saturdays. The Chesapeake zoological laboratory, now open at Beaufort, N. C., is engaged in the investigation of marine life on the Atlantic seaboard. Four scientific publications are issued under the auspices of the university, devoted respectively to mathematics, chemistry, biology, and philology. President, D. C. Gilman, LL.D.

JOHNSON, a co. in n.w. Arkansas, bounded s. by Arkansas river; 580 sq.m.; pop. '80, 11,565. It is drained by Spadra creek. The surface is uneven and well timbered. Soil generally fertile. Staple products: cotton, tobacco, maize, and pork. Coal is found. The Little Rock and Fort Smith railroad passes through the county. Co. seat, Clarksville.

JOHNSON, an eastern central co. of Georgia; 250 sq.m.; pop. '80, 4,800. It is bounded w. by the Oconee river, and intersected by the Great Ohoopee. Surface uneven, and much of it covered with forests. The staple products are cotton and maize. Co. seat, Wrightsville.

JOHNSON, a co. in eastern Kansas, bounded n.w. by the Kansas river, and partly drained by the Big Blue and Osage rivers; 500 sq.m.; pop. '80, 16,853. Surface nearly level, diversified by prairies and forests. Soil deep and fertile, producing oats, wheat, and maize. The co. is intersected by the Missouri river and several railroads, which meet at Olathe, the co. seat.

JOHNSON, a co. in eastern Kentucky; 450 sq.m.; pop. '80, 9,155. It is traversed by the w. fork of Big Sandy river. The surface is hilly and extensively covered with forests. Soil in the valleys is fertile. Staple products: wheat, maize, grass, and pork. Bituminous coal is found. Co. seat, Paintsville.

JOHNSON, a co. in southern Illinois; 325 sq.m.; pop. '80, 13,078. intersected by the Cairo and Vincennes railroad. Surface much broken by steep hills; soil fertile, producing wheat, maize, and oats. The co. abounds in limestone. Co. seat, Vienna.

JOHNSON, a co. in southern central Indiana, watered by the e. and w. forks of White river and Sugar creek; 320 sq.m.; pop. '80, 19,537. Surface rolling; extensively covered with forests; soil a fertile loam. Staples: wheat, maize, grass, and pork. Chief articles of manufacture are carriages, lumber, saddlery, and brick. There are several flour, planing, and saw-mills. The co. is intersected by the Jeffersonville, Madison and Indianapolis, and the Cincinnati and Martinsville railroads. Co. seat, Franklin.

JOHNSON, a co. in s.e. Iowa, watered by the Iowa river, traversed by the Chicago, Rock Island and Pacific, and the Burlington, Cedar Rapids and Northern railroads; 610 sq.m.; pop. '80, 25,429. The surface is varied with prairies and forests; soil very fertile. Maize, oats, hay, flax, and pork are the staple products. The co. has deposits of limestone. The principal manufactures are carriages, saddlery, and woolen goods. Co. seat, Iowa City.

JOHNSON, a co. in western Missouri, intersected by the Missouri Pacific railroad, and partly traversed by the Osage branch of the Missouri, Kansas and Texas railroad; 750 sq.m.; pop. '80, 28,172. The surface is varied by prairie and forest; soil fertile and adapted to pasturage. Staples: maize, wheat, oats, hay, and pork. Among the minerals are bituminous coal and limestone. There are manufactories of carriages, agricultural implements, and saddlery, and of flour; also saw-mills. Co. seat, Warrensburg.

JOHNSON, a co. in s.e. Nebraska, intersected by the Atchison and Nebraska railroad, and drained by the Big Nemaha river, and partly by affluents of the Little Nemaha river; 378 sq.m.; pop. '80, 7,597. It has a rolling surface, and soil very fertile, producing wheat, oats, maize, and hay. Co. seat, Tecumseh.

JOHNSON, a co. in n.e. Tennessee, bounded n. by Virginia, s.e. by North Carolina; 3,000 sq.m.; pop. '80, 7,766. It is mountainous and thickly wooded. The valleys are fertile, producing maize, oats, and grass. Iron ore is found. The co. is watered by the Watauga river and its branches. Co. seat, Taylorsville.

JOHNSON, a co. in n.e. Texas, bounded s.w. by the river Brazos; 600 sq.m.; pop. 80, 17,911. It has a rolling surface and fertile soil. Staples: cotton and maize. Co. seat, Cleburn.

JOHNSON : co., Wyoming terr. See page 887.

JOHNSON, Alexander Bryan, 1786–1807; b. England. Emigrated to the United States and settled in Utica, N. Y., in 1801. He studied law and was admitted to practice, but established himself instead in the banking business. Of a metaphysical turn of mind, he devoted himself to the study of abstruse subjects in philosophy, and published a number of works. *Philosophy of Human Knowledge, or a Treatise on Language; Treatise on Language, or the Relation which Words bear to Things; Physiology of the Senses; Religion in its Relation to the Present Life*, etc. His *Physiology of the Senses* was favorably considered in the *Westminster Review*.

JOHNSON, Alvin Jewett. See page 887.

JOHNSON, Andrew, 17th president of the United States of America, was b. at Raleigh, N. C., Dec. 29, 1808. At the age of 4 years he lost his father, who was drowned in attempting to save the life of a friend; and when 10 years old he was apprenticed to a tailor, whom he served for 7 years, receiving no schooling. A visitor to the shop where he worked used to read aloud from a collection of speeches of British statesmen. This aroused young Johnson's interest and ambition; he learned the alphabet, borrowed the book, and with the aid of a journeyman learned to read, working at it two or three hours every night. At the expiration of his apprenticeship he worked for two years as a journeyman at Laurens Court-house, S. C.; but a love-disappointment, caused by his humble position, induced him in 1826 to emigrate to Greenville, Tenn., where he soon after married, and his wife taught him writing and arithmetic. In 1828 he was elected to his first office—alderman of the village; in 1830 he was chosen mayor, and twice re-elected; in 1835 he was elected to the state legislature, and again in 1839; in 1840 he was a presidential elector, and canvassed the state for Mr. Van Buren, the democratic candidate; in 1841 he was elected to the state senate; and in 1843 to the congress of the United States, where for 10 years he supported the policy of the democratic party. In 1853 he was elected governor of Tennessee, and again in 1855. In 1857 he was elected by the legislature a member of the U. S. senate, in which he advocated the union policy of the republican party; and on the occupation of Nashville by the federals, 1862, was appointed by president Lincoln military governor of Tennessee. In this position he gave so much satisfaction to the north that in 1864 he was nominated by the republican party for the office of vice-president, and was elected with president Lincoln, then re-elected for his second term, and took the oath of office Mar. 4, 1865. On April 14, by the assassination of president Lincoln, he succeeded to the presidency, but soon disappointed his party by taking a moderate, conservative course, scrupulously respecting his oath to support the constitution. In 1866 his policy appeared for a time likely to meet with popular favor; but some indiscreet and violent speeches, during a tour to Chicago and St. Louis, turned the tide against him, and in the congressional elections his opponents triumphed by increased majorities. His vetoes were generally nullified by the two-thirds vote of both houses. In 1867 Johnson suspended Mr. Stanton, secretary of war, who was reinstated by the senate the following year. An attempted *coup d'état* to gain possession of the war office during this quarrel led to the impeachment of the president in 1868, but he was acquitted. His term of office expired in 1869; and afterwards Johnson unsuccessfully sought to be governor of Tennessee and U. S. senator. He died in 1875. See *Life of Andrew Johnson* (New York, 1866); *The Trial of Andrew Johnson* (official), 3 vols., 1868.

JOHNSON, Andrew (*ante*), 1808–75; b. N. C.; son of Jacob Johnson, a petty city officer in Raleigh. The father lived only four years after Andrew's birth, and, being extremely poor, he left no funds for the boy's education. When ten years old he was bound to a Mr. Selby to learn the business of tailoring. While there he took great interest in readings by a gentleman who frequently passed an hour or two in the humble shop. Andrew listened with close attention, particularly to the speeches of great English orators. But his utter lack of education was a great grievance, and he resolved to learn to read by himself. For this purpose he borrowed books and passed all the time between labor and sleep in diligent study. Just before his term of service was out he went to work on his own account at Laurens Court-house, S. C.; but in the spring of 1826 he went back to Raleigh. His tailor-master had gone to another place, and Andrew made a foot-journey of 20 m. to see him, his object being to apologize for leaving service before his term was out, and to pay for the unfulfilled months. Selby wanted security, but being an entire stranger in the place Johnson was unable to give it. His mother depended upon him for support, and he determined to try his fortunes in Tennessee. Taking her with him he made his way to Greenville, in the extreme eastern part of the state. Here he worked as a journeyman tailor about a year, took a wife, and concluded to make the place his permanent home. His wife was fairly educated, and she became his tutor. He could read, but that was the most of his acquirements. She taught him writing and ordinary arithmetic, these, with reading,

being then the extent of the education of the working classes in that region. Johnson was naturally a politician, and when only 20 years old he got up a party of workingmen in opposition to the planters and other well-to-do citizens who had always had their own way in the town. The workingmen chose him alderman and re-elected him twice. In 1830 Greenville was a city, and Johnson was elected mayor, serving three years. His ambition was to be a public speaker, and to qualify himself he joined a debating society, most of whom were students of Greenville college. In 1834 Johnson took an active part in advocating the proposed new constitution for the state. Parties at this period were whigs and democrats; Johnson was anxious to get into the legislature, and, in accordance with the custom in that part of the union, in 1835 he nominated himself for the assembly, declaring himself a democrat. As the nomination was not readily accepted by the people, he took the field in person, and by several strong common-sense speeches quite silenced the other side and easily secured his election. The main feature of his course as a member was his opposition to the creation of a debt of $4,000,000 for internal improvements unless such debt should be approved by the vote of the people. But the bill was passed, and in 1837 Johnson was defeated on account of his opposition to it. That his course was right was proved soon afterwards; the works undertaken were abandoned, and the greater portion of the money was stolen or wasted. In 1839 he was again chosen a member of the legislature. In the "Log Cabin and Hard Cider" campaign for president in 1840 he was on the democratic electoral ticket, and made many speeches for Van Buren. The next year he was elected to the state senate, and in 1843 he was chosen a member of congress, where he served his constituents so satisfactorily as to secure four consecutive re-elections. Within his ten years' service in the house of representatives he supported the annexation of Texas and the war on Mexico; the refunding of gen. Jackson's fine for imprisoning a judge at New Orleans in 1815, and the tariff of 1846. He favored the acceptance of the 49th degree of latitude to settle the Oregon boundary dispute, and was one of the foremost of the advocates of a homestead law. He was also a firm supporter of the president's veto power; and on all occasions he was in favor of the greatest economy in public expenditures. He left congress Mar., 1853, and in the same year was chosen governor of his state over the whig aspirant. Two years afterwards he was re-chosen over a candidate supported both by the whigs and the newly-organized American party. This last canvass was very turbulent, and many threats were made against the democratic candidate and others. On one occasion Johnson stepped to the front of the platform from which he was to speak, drew a pistol so that it could be seen by all, laid it before him, and remarked: "Fellow-citizens: I have been informed that part of the business to be transacted on the present occasion is the assassination of the individual who now has the honor of addressing you. I beg respectfully to propose that this be the first business in order. Therefore if any man has come here to-night for the purpose indicated, I do not say to him let him speak, but let him shoot." Naturally a man of such character was popular with the rude people in that comparatively new country. The tailor's apprentice, who at ten years of age could not even read, had, by force of character and an iron determination to advance, filled the highest offices in the state. If he lacked education and fitness for polite society, he had enough for the people who supported him. But during all this political work and the duties of office he improved every occasion for study, and little by little accumulated enough education to fit him for the responsible positions which he was called upon to fill.

In 1857 he was elected to the United States senate, where, before the breaking out of the rebellion, he was conspicuous in advocating the 160-acres homestead act; and chiefly through his influence the bill was passed, but it was vetoed by president Buchanan. In 1858 Jefferson Davis, because, as he alleged, of Indian and Mormon troubles, proposed a considerable addition to the regular army. Johnson opposed it, and finally instead of a temporary addition of 4,000 men the bill when passed authorized but two regiments to serve a year and a half only. Another great measure opposed by Johnson was the Pacific railroad. Thus far in a political career of 30 years he had said very little on the slavery question, observing the silence characteristic of the party to which he belonged; but he never failed to place the question of the union of the states far above the existence or extinction of slavery. In the democratic national convention of 1860 the delegates from Tennessee put Johnson forward as their candidate for president, but he did not come near the nomination. In his own state he began a vigorous support of Breckenridge, who was the candidate of the extreme pro-slavery section of the party. Soon discovering, however, that secession was contemplated, he went directly against Breckenridge, and gave loyal support in the senate to the cause of union. While he was speaking against secession in the senate, his state, through her legislature, voted to go with the secessionists, and violence broke out everywhere. There had been a vote of the people on the question of calling a convention to consider the subject of secession, and the opponents of such a convention were largely in the majority. Therefore when the legislature assumed to do what the people had just refused, the excitement was intense, so much so that when Johnson went home in the spring of 1861 it was at the risk of his life. Personal assaults were threatened, but his undaunted courage was well known and no one dared attack him, satisfying their spite by burning him in effigy in all the large towns in the state. He worked hard and faithfully for the union in the e. Tennessee convention, in furnishing assistance to union fugitives, and in establishing a camp which

might serve as a place of refuge. The secessionists made their nearest personal attack upon Johnson when they turned his family out of doors and confiscated his slaves. Early in March, 1862, Johnson was made military governor of Tennessee, and he commenced his duties at Nashville about the middle of the month. He sent forth a proclamation in which he said "while it may become necessary, in vindicating the violated majesty of the law and reasserting its imperial sway, to punish intelligent and conscious treason, no merely retaliatory or vindictive policy will be adopted." His proposed leniency had no effect upon the determined secessionists. For a long time he labored earnestly to bring his state back into the union; but neither mild nor harsh measures produced any good effect. On one occasion, in view of numerous outrages by secessionists, he proclaimed that "in every instance in which a union man is arrested and maltreated by marauding bands, five or more rebels from the most prominent in the immediate neighborhood shall be arrested, imprisoned, and otherwise dealt with as the case may require; and further, in all cases where the property of citizens loyal to the government of the United States is taken or destroyed, full and ample remuneration shall be made to them out of the property of such rebels in the vicinity as have sympathized with and given aid, comfort, information, or encouragement to the parties committing such depredations." Near the beginning of Mar., 1864, under Johnson's special orders, Tennessee elected officers, both state and local, and the wheels of an ordinary government began to move. Three months afterwards Andrew Johnson was nominated for vice-president on the ticket with Mr. Lincoln. He was elected and inaugurated Mar. 4, 1865. His remarkable address on that occasion was the cause of deep regret not only among his friends, but among all loyal people. Six weeks afterwards Mr. Lincoln was shot by Booth, and the tailor's apprentice of Raleigh became president of the United States.

This was the third time that a vice-president had risen to the executive office through the accident of death, and in this case, as in the cases preceding, the incumbent was soon at variance with the party that elected him. President Harrison died April, 1841, one month after his inauguration, and vice-president Tyler took the chair. In less than six months he had estranged his whig supporters by vetoing an act for the creation of a national bank, the fiscal bank of the United States, which act had been passed at his express desire. The bill was modified, again passed, and again vetoed. Then his cabinet, with the exception of Mr. Webster, the secretary of state, resigned. A cabinet was appointed of whom nearly all were democrats. By these and other acts the first "accidental" president lost the confidence of the whigs without gaining that of the democrats. He was nominated for president, but after three months' consideration withdrew his name. President Taylor died July 9, 1850, a year and four months after his installation, and vice-president Fillmore succeeded to the chief office. He adhered to the whig party, but his approval of the law for the return of fugitive slaves gave great offense to a large number of his supporters. To the mere approval he added a proclamation in which he denounced interference in the case of captured fugitives, and declared that he would enforce the law at all hazards. The result of his administration was the overthrow of the old whig party and the capture of all branches of the government by the democrats. Andrew Johnson, on taking the executive chair, made a brief speech, which was understood to mean that he would deal with the utmost severity with the authors of the rebellion, which had been crushed only a few days before by the surrender of Lee. He said: "The American people must be taught, if they do not already feel, that treason is a crime and must be punished; that the government will not always bear with its enemies; that it is strong, not only to protect but to punish. The people must understand that it [treason] is the blackest of crimes and will be surely punished." Instead of following this policy his course was the very opposite. He hastened to bring Virginia back to the union, and near the close of June he brushed aside all regulations with regard to trade with the seceding states. He proclaimed general amnesty to all (except a few specified classes) who would swear to be loyal to the union. Under his proclamations provisional governments were set up in a number of the states but a few weeks before in rebellion, and he prepared the way for them to send members to congress as if no secession had occurred. These acts put him in opposition to the majority of the republicans in congress. In all that he had done there had been no thought of securing the political rights of the freedmen, who were left entirely in the control of their late masters. Congress appointed a committee on reconstruction and on the admission of southern members to the house, and adopted the civil rights act, adding an act to increase the power and efficiency of the freedmen's bureau. These last two bills were vetoed by president Johnson, but they were readopted and passed by the necessary majority. This action was severely denounced by Mr. Johnson, who characterized the course of congress as another rebellion. Thenceforward the republican president was in direct antagonism to the republican majorities in the senate and house, and, it may be added, with the mass of the party in the union. In Aug. an attempt was made by a thinly-attended convention at Philadelphia to form a party to support the president's policy, but nothing came of it. The disaffection soon began to work in the cabinet, and in July three members resigned in consequence of irreconcilable differences with the president. But he was so persistent in his course that when going with gen. Grant and others to Chicago, to witness the laying of the foundation of a monument to the late Stephen A. Douglas, he

took advantage of every stopping of the train to address the people in advocacy of his policy, usually adding denunciatory remarks concerning the course of the republicans in congress. Congress declared that the 14th amendment to the constitution should be ratified by every seceding state as a preliminary to readmission to the union. This amendment declared all persons born or naturalized in the union to be citizens, and, of course, included all the freedmen in the south. The president vetoed the resolution. During the next session acts were passed requiring the right of voting to be granted without regard to color, in territories applying for admission as states. This, too, was vetoed; but in all cases the bills were re-passed and became laws. Mr. Johnson's next trouble was with the military governments and commanders. In Mar., 1867, in spite of the familiar veto, an act was passed making five military districts in the ten most important of the southern states. The president appointed the five commanders, but at the same time procured from the attorney-general, Mr. Stanbery, an opinion as to certain legal effects of the several acts aiming at reconstruction. The opinion, the general tenor of which was to destroy the efficiency of the acts of congress, was supported by all the members of the cabinet except Mr. Stanton, the secretary of war. Thus fortified the president sent this opinion to the military commanders in the south as an order for their guidance. The effect was told in a report by gen. Sheridan, who said: "The result of Mr. Stanbery's opinion is beginning to show itself by defiant opposition in all acts of the military commander, and by impeding and rendering helpless the civil officers acting under his appointment." The next move in congress was to make the gen. of the army the sole supervisor of the acts of the military commanders. Mr. Johnson vetoed the act, but it was passed notwithstanding his objections. A few months later the president retaliated by putting new commanders over the districts. Mr. Stanton's opposition to the Stanbery opinion was not forgotten, and in Aug. he was displaced as secretary of war, and gen. Grant was given the position for the time being. Mr. Stanton protested that his removal was in violation of the tenure-of-office law, but nothing came of his protest at the time. Aug. 20, 1867, a proclamation from the president stated that peace, order, and the supremacy of civil government existed throughout the union. Early in Sept. another amnesty proclaimed by him restored to suffrage and relieved from confiscation of property nearly all the people who had been in the secession movement. At the meeting of congress in Sept. Mr. Johnson gave the the senate his reason for removing Mr. Stanton, but the senate opposed the removal, thus replacing the secretary. Five months afterwards he again removed Stanton, and put Lorenzo Thomas in his place. The senate immediately resolved that "the president has no power to remove the secretary of war and designate any other person to perform the duties of that office." Mr. Johnson's long contest with congress was drawing to a dramatic close. The day after the adoption of the resolutions by the senate, the house of representatives determined upon the president's impeachment; the vote being 126 in favor and 47 against such action. The articles of impeachment, eleven in all, recited many offenses, the principal of which were the removal of the secretary of war; the public expression of disregard of and contempt for the legislative branch of the government, the declaration that the one in session was not a constitutional congress, and particularly his obstruction to the execution of congressional acts. The trial commenced on Mar. 23, Mr. Stanbery (attorney-general) and judges Curtis and Nelson being the president's counsel. The main point of the defense was that Mr. Johnson's course in the work of reconstruction was merely the continuation of a plan resolved upon by president Lincoln and the members of the cabinet. In the senate, sitting as the court of impeachment, the final vote on contempt for congress and on the Stanton removal was: guilty, 35; not guilty 19. This amounted to an acquittal, as it requires two-thirds of the senate to declare a defendant guilty. As soon as the trial was over Mr. Stanton voluntarily gave up his office and was succeeded by gen. Schofield.

At the democratic national convention in New York, July 4, 1868, Mr. Johnson's name was among the list of candidates for president. On the first ballot he had 65 votes, standing second on the list, Pendleton having 105. But his vote diminished rapidly until, on the 19th ballot, his name did not appear. On the same day Mr. Johnson proclaimed pardon to all persons except such as might be under indictment before a federal court. On Christmas day, 1868, he proclaimed complete pardon to all who had been directly or indirectly concerned in secession, or in any way taken part in the war against the union. This was his last important official act. He was succeeded, Mar. 4, 1869, by gen. Grant, and at once repaired to his home in Greenville. Anxious to return to political life he sought the place of senator from Tennessee, and came within three votes of getting it. Two years later (1872) he ran as an independent candidate for congress, but the result was to elect the republican nominee. But in Jan., 1875, he was chosen U. S. senator, and was in his seat during the short extra session in Mar., his only noteworthy act being a speech against the recognition of the Kellogg government in Louisiana. For a man with so few early advantages—which may have accounted for his narrowness and obstinacy—he showed great ability, courage, and political acumen, while his honesty was never doubted.

JOHNSON, Lady ARBELLA, or ARABELLA, d. 1630; daughter of Thomas, 14th earl of Lincoln, wife of Isaac Johnson. She accompanied her husband to New England on

board the *Eagle*, whose name was changed in her honor to the *Arbella*. She died at Salem a little more than two months after her arrival in Massachusetts Bay.

JOHNSON, CAVE, 1793–1866. A resident of Tennessee, he entered the legal profession, and, for several years, held the office of circuit judge in that state. He was elected a representative in congress in 1829, and served eight years, and again, from 1839, six years. In 1845 he was called to the cabinet of president Polk as postmaster-general. On the election of gen. Taylor he returned to Tennessee, where he became president of a bank, which position he continued to fill until the outbreak of the war of secession. He remained loyal to the union, and was elected a state senator by that side, but age and declining health forced him to retire from political life.

JOHNSON, EASTMAN, b. Me., 1824. At an early age he developed talent as an artist, and succeeded in making his work so remunerative that he was enabled to defray the expense of study in Europe. He remained two years in Düsseldorf, and four years at the Hague, producing, among other works, "The Savoyard" and "The Card-Players," which were his earliest efforts in oil. He displayed a leaning towards *genre* subjects, and soon became famous in this department of art-work. Having made an examination of the leading European galleries, he settled in New York in 1856, where he continued to reside, contributing freely to the annual exhibitions of the national academy of design, in which he is an academician. His more noteworthy and popular works are "The Old Kentucky Home;" "The Boyhood of Abraham Lincoln;" "The Wounded Drummer-Boy;" "Mount Vernon Kitchen," etc. Mr. Johnson's paintings have been among the best known and most popular of those of any American artist, having been very largely multipled by chromo-lithography. He excels in composition, while his execution is refined, though broad and spirited. In some of his work he resembles Edouard Frère, one of the masters in the modern French school of *genre* painting

JOHNSON, EDWARD, 1599–1672; b. England; came to New England with gov. Winthrop about 1630, and settled in Woburn, Mass., where he became prominent in local organization. He was representative to the general court during several terms, and its speaker in 1655, besides holding the office of recorder of the town of Woburn from its incorporation to the date of his death. He wrote a history of New England, from 1628 to 1652, which was published in 1654 under the title, *Wonder-working Providence of Zion's Savior in New England.* This work has been reprinted in the *Mass. Hist. Coll.*

JOHNSON, HERRICK, D.D., LL.D. See page 887.

JOHNSON, HERSCHEL V., 1812–80; b. Ga.; a practicing lawyer and prominent democratic politician in his own state, with somewhat of a national reputation. He was a U. S. senator in 1848; judge of the Georgia supreme court, 1849–53; governor of the state, 1853–57; and candidate for vice-president with Stephen A. Douglas in 1860. He was in the confederate senate during the war of secession.

JOHNSON, ISAAC, d. 1630; b. England; accompanied gov. Winthrop on board the *Arbella* to New England, and became one of the founders of the colony of Massachusetts Bay. He was among those who organized the first church at Charlestown, Mass., and he conducted the first settlement at Boston, which was made on account of its possessing better water facilities than Charlestown. Johnson was the wealthiest man in the colony, public-spirited, and generous, but he only lived three months after his arrival.

JOHNSON, Sir JOHN, 1742–1830; son of sir William; succeeded to his father's estates a year before the outbreak of the American revolution, and, raising a body of men, fled to Canada, where he was commissioned a colonel in the royal service. He defeated gen. Herkimer at Fort Stanwix in 1777, but three years later was himself defeated, and his property was confiscated by the U. S. government. The British government gave him a grant of land in Canada; he was made a member of the colonial council, and received the appointment of superintendent of Indian affairs, which he held until his death.

JOHNSON, JOSEPH, b. Charleston, 1776; was a graduate of the university of Penn.; studied medicine, and began practice in his native city, where he also held the office of mayor for many years. He was much interested in education, was commissioner of public schools, and president of the apprentices' library association. For 60 years he was a member of the South Carolina society, during 20 of which he was its president. He was active in politics, and strenuously opposed the nullification measures of 1832. Besides being the author of numerous essays and published papers upon a variety of topics, he compiled *Traditions and Reminiscences of the Revolution,* esteemed as an important adjunct to the history of that period.

JOHNSON, OLIVER, b. Vt., 1809; a prominent publicist and editor; was apprenticed to a printer in Montpelier, Vt., and entered the editorial profession in 1831. For 30 years he was earnestly engaged in advocating the anti-slavery cause in the various newspapers with which he was concerned, and as a lecturer and pamphleteer. From 1865 to 1870 he was managing-editor of the *Independent,* New York, and editor of the New York *Weekly Tribune* for the three years following. In 1873 he became the superintending editor of the *Christian Union,* a position which he continued to hold until 1876, when he became editor of the *Journal,* published in Orange, N. J., continuing until 1879. He now resides in New York, engaged in literary labor. Mr. Johnson's published works have been *A Dissertation,* in support of the doctrine of eternal punish-

ment (1832); several pamphlets upon the anti-slavery and other reforms, and (1880) *William Lloyd Garrison and his Times; or, Sketches of the Anti-Slavery Movement in America*, 430 pp. He is a clear and facile writer, and in all his public work has shown intenseness of conviction, keen sense of justice, and quick sympathy with whatever cause or class seemed to be under disadvantage. His early work, noted above, indicates theological views to which of late years he has had strong repugnance.

JOHNSON, Percival Norton, 1793–1866; b. England; an expert metallurgist, much employed in consultation at important English mines. His father being an assayer, he was early familiarized with the nature and relations of metals, and first established the rules for accurately determining the analysis of bullion. Having found in use in Germany the alloy known as German silver, he introduced it into England. He improved the mechanism in use in some of the Cornish mines, and made important inventions and discoveries in mining and metallurgy.

JOHNSON, Reverdy, 1796–1876; b. Md.; studied law, and was admitted to the Maryland bar in 1815. He gained a high reputation as a profound lawyer, and was frequently employed in arguing important cases before the supreme court of the United States. He represented his native state in the U. S. senate, 1845–49, when he entered president Taylor's cabinet as attorney-general. After the death of gen. Taylor in 1850 Mr. Johnson continued to practice law in Baltimore, and edited the reports of the Maryland court of appeals from 1800 to 1826. In 1863 he re-entered the U. S. senate for six years, but was appointed minister to England in 1868. His negotiations towards a settlement of the disputed *Alabama* claims having proved unsatisfactory to the American government, and his convention with Great Britain being rejected by the senate of the United States, Mr. Johnson was recalled in 1869. During the trial of the assassins and conspirators concerned in the murder of Abraham Lincoln, Mr. Johnson prepared an argument in behalf of Mrs. Surratt (afterwards executed for complicity in the assassination) which the military court that tried the case refused to hear.

JOHNSON, Richard Mentor, 1780–1850; b. Ky.; from being a practicing lawyer, a state legislator, and a member of congress, became the col. of a regiment of Kentucky mounted riflemen in the war of 1812, and did good service on the Canadian frontier. In 1813 Johnson raised another regiment of mounted soldiers, and supported gen. Harrison, particularly during the battle of the Thames. He was badly wounded in this engagement, but is said to have killed the celebrated chief Tecumseh, out of the mystery attending whose death originated the popular question, "Who killed Tecumseh?" In 1836 Johnson ran for vice-president on the ticket with Martin Van Buren, and being defeated by a few votes, and no choice being made, the senate selected him for the office, in accordance with the law in such cases. In 1850 he was a member of the Kentucky state legislature, and died in Frankfort while occupying this position. He was distinguished for the kindliness of his nature, and for the fascinating gentleness of his manners. He framed the law which abolished imprisonment for debt in Kentucky.

JOHNSON, Richard W., b. Ky., 1827; graduated at West Point, entered the U. S. infantry, exchanged to cavalry in 1855, and served against the Indians in Texas and Mexico. He was a capt. of cavalry in 1861, and in the same year promoted to command a brigade under gen. Buel. He fought gallantly in the army of the Cumberland, and distinguished himself at Stone river, Chickamauga, and Missionary ridge; and at the battle of Nashville commanded a division of cavalry, and was brevetted brig.gen. in 1865. He was brevetted maj.gen. U. S. A. for gallant services, and was retired with full rank in 1867.

JOHNSON, Samuel, son of Michael Johnson, was b. at Lichfield, on Sept. 18, 1709. He received his early education in his native town, from a man named Hunter; of whom he has recorded that "he beat me very well"—adding, "without that I should have done nothing." In 1728 he went to Pembroke college, Oxford, having been engaged for the two previous years of his life in learning his father's business of bookseller. The *Short Account of Lichfield*, 1819, says that books of his binding are still extant in that city. At Oxford Johnson spent probably the most unhappy period of his unhappy life. Overpowered by debts, difficulties, and religious doubts, he became a prey to the morbid melancholy of his constitution. Poverty prevented him from taking his degree. In 1731 his father died insolvent. In the same year he went to Bosworth as usher of a school. Finding the drudgery of this situation unbearable, he soon gave it up, gaining a meager livelihood by working for booksellers in Birmingham. In 1736 he married Mrs. Porter, a widow; she brought him £800. He then set agoing a school, which having no success, he repaired (1737) to London in the company of his celebrated pupil, David Garrick. Here he formed a connection with Cave, the editor of the *Gentleman's Magazine*, to which periodical he became a contributor. In the following year he published *London*, a poem in imitation of the third satire of Juvenal, which was very favorably received, Pope, in particular, being warm in its praise. But for many years he was miserably remunerated for his work, and had great difficulty in keeping the wolf of hunger from his door. Little is known respecting Johnson's life from this period till he was turned of fifty. We may form, however, some guess of the measure of its unhappiness, when we consider the character and constitution of the man,

and what was the position of the majority of men of letters at that time—for literature, "a dark night between two sunny days"—when the day of patrician patronage was at its close, and that of public patronage had not yet dawned. After 1740 he began to "report" (if we may be allowed to misuse this word) the parliamentary debates for Cave's magazine. These "debates" were drawn up by Johnson himself, after he had ascertained the order in which the different speakers rose, and the drift of their arguments. One can readily believe that statesmen were surprised at the splendor and pomp of their own eloquence when they saw it in print. In 1744 Johnson published his interesting *Life of Richard Savage;* in 1749 his best poem, *The Vanity of Human Wishes*, an imitation of the tenth satire of Juvenal; and in 1750 commenced *The Rambler*, a periodical which he conducted for two years, and the contents of which were almost wholly his own composition. His *Dictionary*, a noble piece of work, entitling its author to being considered the founder of English lexicography, appeared in 1755, after eight years of solid labor; *The Idler*, another periodical, was begun by Johnson in 1758, and carried on for two years also; and in 1759 occurred one of the most touching episodes of his life—the writing of *Rasselas* to pay the expenses of his mother's funeral. It was written, he tells us, "in the evenings of a week." At last he emerged from obscurity. In 1762 a pension of £300 a year was conferred on him by lord Bute; and in the following year occurred an event, apparently of little moment, but which has had a lasting influence upon his fame; this was his introduction to James Boswell, whose *Life of Dr. Johnson* is probably more imperishable than any of the doctor's own writings. In 1764 the famous literary club was instituted, and the following year began his intimacy with the Thrales. In the same year appeared his edition of Shakespeare. In 1773 he visited the Highlands with Boswell. In 1781 appeared his *Lives of the Poets*, his last literary work of any importance. He died on Dec. 13, 1784. He was buried in Westminster abbey, close by the grave of Garrick.

Strength, or at least force of mind, a certain sage solemnity in the treatment of moral themes, a sharp eye for the observation of character as it manifests itself in society, and a great power of caustic wit, are the chief qualities noticeable in Johnson. He had little aptitude for abstract thinking, and no great vigor of imagination—hence he was neither a philosopher nor a poet; but he had good sense, a solid judgment, and a serious thoughtful nature—hence we find scattered through his numerous works a multitude of valuable remarks on books and men and manners. His written style is very sonorous, inflated, and antithetic; the language is frequently grander than the thought, but his conversational style, as reported by Boswell, is terse, robust, and felicitous in the highest degree.

JOHNSON, Samuel, b. Mass., 1822; a graduate of Harvard university and of the divinity school, and pastor of a "free church" in Lynn, Mass., being independent in his religious opinions, though agreeing generally with the Unitarian belief. He edited, jointly with the rev. Samuel Longfellow, a collection of sacred poetry entitled *Hymns of the Spirit.*

JOHNSON, Samuel, d.d., 1696–1772; b. Conn.; a graduate of Yale college, and the first president (1754–63) of King's, now Columbia, college, New York. He received the degree of a.m. both at Oxford and Cambridge; but, notwithstanding his ability and his learning, he was unpopular with the New England people. He was constantly involved in controversy, growing out of his adoption of the Episcopalian faith, and published many controversial works. His other writings were *A System of Morality*, a compend of logic and metaphysics, and another of ethics, the two latter being introduced into the university of Pennsylvania as text-books. He also published an *English and Hebrew Grammar.*

JOHNSON, Walter Rogers, 1794–1852; b. Mass.; a scientific expert in the departments of physics and applied chemistry. He was a teacher in Pennsylvania 1821–26, when he became professor of mechanics and natural philosophy in the Philadelphia high school. He devoted himself to studying the strength of materials and mechanical construction, and was often employed in consultation and as an expert in the construction of public works. In 1848 he was attached to the Smithsonian institution, was connected with the first world's fair, London, 1851, and was the first secretary of the American association for the advancement of science. He wrote *Coal Trade of British America; Report on Coals;* and *Use of Anthracite in the Manufacture of Iron.*

JOHNSON, Sir William, 1715–74; b. Ireland; was sent to America in 1738 to take the management of the estates of his uncle, admiral sir Peter Warren. His business brought him in contact with the Mohawk Indians, whose language he learned, and who made him an honorary chieftain of their tribe. Johnson received his baronetcy during the French and Indian war, for having defeated baron Dieskau at lake George (which he named). He fought with Abercrombie at fort Ticonderoga, and on the death of gen. Prideaux before fort Niagara, he succeeded that general in the command of the expedition, in which he was completely successful. Sir William's services to the British cause were highly esteemed, and the king presented him with a grant of 100,000 acres of land in New York, where sir William settled in the new residence which he erected, and which was called "Johnson Hall." Around this center a settlement was made which soon grew into the village of Johnstown, Tryon co., N. Y. Sir William continued to reside

on his estate until his death, and aided largely in the development of the surrounding country, and in fostering stock-raising and agriculture. In 1768 he effected the important treaty with the Indians at fort Stanwix.

JOHNSON, WILLIAM SAMUEL, LL.D., 1727–1819; b. Conn.; educated for the bar after graduating at Yale in 1744. He was in England in 1766 acting as a colonial agent, and while there became acquainted with Dr. Samuel Johnson, with whom he corresponded after his return to America. A member of congress in 1785, he was also a member of the constitutional convention of 1787, and two years later sat in the U. S. senate to represent his native state. From 1791 to 1800 he was president of Columbia college, New York.

JOHNSTON, a co. in e. North Carolina, traversed by the Little and Neuse rivers, and the Richmond and Danville, and Atlantic and North Carolina railroads; 640 sq.m.; pop. '80, 23,461. surface undulating and heavily wooded, two-thirds of the entire acreage in 1870 being woodland. The soil is fairly productive, corn, sweet potatoes, and cotton being chiefly grown. Pork is extensively raised. Minerals are generally diffused, including iron, lead, gold, silver, and zinc. Granite is also abundant. Capital, Smithfield.

JOHNSTON, R. I. See page 887.

JOHNSTON, ALBERT SIDNEY, 1803–62; educated at West Point, graduated 1826, and entered the U. S. army in the Sixth infantry. He fought in the Black Hawk war, but resigned from the service shortly after its close, and emigrated to Texas, then struggling for its independence, which was declared in 1836. Johnston enlisted in the Texan army after the battle of San Jacinto, and was appointed commander-in-chief in place of gen. Felix Houston, with whom he fought a duel in consequence. In 1838 gen. Johnston received the appointment of secretary of war, but two years later retired from the public service, and became a planter. When the war broke out between the United States and Mexico gen. Johnston raised a Texan rifle-regiment, of which he took command, and at the siege of Monterey was acting inspector-general on the staff of gen. W. O. Butler. He was appointed by president Taylor a paymaster in the army in 1849, and in 1855 col. of the 2d U. S. cavalry. In 1857, the Mormons having defied the U. S. authority, a military expedition was sent against them, more with the design to overawe than to assume the offensive by positive action. This mission required great coolness and judgment, and gen. Johnston was chosen for its command. He led the expedition across the plains to Salt Lake city, and succeeded in effecting the purpose of the government without bloodshed. His success in this difficult enterprise was rewarded by a brevet brigadier-generalship. At the outbreak of the rebellion gen. Johnston was in command of the military division of the Pacific, but in May, 1861, resigned his commission, and, proceeding to Richmond, entered the service of the confederate government, being appointed a gen. and placed in command in the west. In the autumn of 1861 he held Bowling Green, Ky.; the capture of fort Donelson in the following spring forced him to evacuate this stronghold, and he retired with his army into Tennessee, and made a stand at Corinth, Miss., where he joined gen. Beauregard. With an army of 50,000 men he attacked gen. Grant, April 6, 1862, at Pittsburg Landing, and fought the battle of Shiloh. Gen. Johnston was killed by a rifle-ball on the first day of this engagement. He was esteemed by the confederates as among their bravest and most skillful generals. Gen. Grant has highly commended his ability; and Horace Greeley said of him (*American Conflict*) that he "was probably the ablest commander at any time engaged in the rebel service."

JOHNSTON, ALEXANDER KEITH, LL.D., F.R.S., the most distinguished name in British cartography, was b. near Edinburgh, Dec. 28, 1804. The elegance of design that characterizes all his productions, and which, in spite of their purely utilitarian aim, gives them a right to rank as specimens of fine art, was probably acquired or developed during his apprenticeship as an engraver. His first important work, the *National Atlas* (fol.), was published in 1843. Its merits received immediate recognition, and Johnston was appointed royal geographer for Scotland. Five years later appeared his far-famed *Physical Atlas of Natural Phenomena,* the publication of which was the signal for a shower of honors from the geographical societies of Europe—that of Paris, in particular, pronouncing the work "one of the most magnificent monuments that has yet been raised to the scientific genius of our age." A second edition, greatly improved, was issued in 1856. In 1850 appeared a very useful *Dictionary of Geography,* better known as "Johnston's Gazetteer" (5th ed. 1877). His *Royal Atlas of Geography* (1861) is probably the most beautiful and minutely accurate atlas ever executed. Johnston also published, in conjunction with other savants, atlases of astronomy and geology; besides a great number of very valuable educational atlases, physical, general, and classical, which have obtained a wide circulation. In 1865 Edinburgh university conferred on him the degree of LL.D., and in 1871 he received the patron's or Victoria gold medal of the royal geographical society. He died July 10, 1871.

JOHNSTON, ARTHUR, 1587–1641; b. in Aberdeenshire, Scotland; educated for a physician, and took his degree of M.D. in Padua in 1610. He was an enthusiastic student of the Latin and Greek classical writers, and formed from them a style which has been greatly admired by critical authorities. He wrote poems in Latin, and paraphrased, in the same language, the Psalms of David. He was physician-in-ordinary to Charles I. from 1632.

JOHNSTON, GABRIEL, b. Scotland at the close of the 17th c.; educated at the university of St. Andrews, in which he became professor of oriental languages; governor of North Carolina, 1734–52. In honor of the earl of Wilmington, whose patronage he enjoyed, he named one of the important towns of the state.

JOHNSTON, GEORGE, 1798–1855; b. Simprin, Scotland; studied medicine with Dr. Abercrombie; graduated at the university of Edinburgh in 1819, and practiced his profession at Berwick-on-Tweed. He devoted himself with great zeal and success to natural history. Besides numerous contributions to the *Edinburgh Philosophical Journal* and other scientific periodicals, he published *History of British Zoöphytes; History of British Sponges and Lythophytes; Introduction to Conchology; The Natural History of the Eastern Borders;* and, at the time of his death, was preparing a work on British annelids.

JOHNSTON, JOHN, LL.D., b. Me., 1806; graduated at Bowdoin; was principal of a seminary at Cazenovia, N. Y.; in 1835 became assistant professor of natural science, and afterwards professor, at the Wesleyan university, Middletown, Conn., where he remains. He is the author of several books on chemistry and natural philosophy, which are used in many colleges and schools. He published also a history of Bristol and Bremen, Me., the latter containing valuable information in relation to the early history of the state. He has contributed to many important periodicals, and is a member of several historical societies and scientific associations.

JOHNSTON, JOHN TAYLOR, b. N. Y., 1820; educated in New York and Edinburgh; graduated at the university of New York in 1839; was admitted to the bar in 1843. He is president of the council of the university of the city of New York, and president of the metropolitan museum of art. He has been actively connected with railroads, and has been prominent as the efficient president of the Central railroad of New Jersey, to which office he was elected in 1848.

JOHNSTON, JOHN W. See page 887.

JOHNSTON, JOSEPH ECCLESTON, an American gen., b. Prince Edward co. Va., 1807; graduated at the military academy, West Point, in 1829; was engaged in garrison duty and as aide to gen. Scott in the Seminole war until 1837, when he resigned his commission and became a civil engineer, but re-entered the army in July, 1838, as first lieut. of topographical engineers; and brevetted capt. for gallantry in the Florida war. After this, until the commencement of the Mexican war, he was engaged in river and harbor improvements, and occupied with various surveys of the boundaries between the United States and the British possessions. In the Mexican war, 1846–47, he served with distinction, was twice wounded, and was brevetted maj., lieut.col., and col. In 1853–55 he had charge of western river improvements, and afterwards was engaged in various duties in Utah, Kansas, and elsewhere. In June, 1860, he was appointed quarter-master-gen., with the rank of brig.gen. April 22, 1861, he resigned his commission, and was appointed maj.gen or gen. in the rebel service by Jefferson Davis. In May he commanded a force at Harper's Ferry, where he was opposed by gen. Patterson. Moving on to Manasses he formed a junction with Beauregard. In the early part of the campaign of 1862 he had command of all the confederate forces in Virginia, and at the battle of Fair Oaks, near Richmond, May 31, 1862, was severely wounded, and for several months disabled for service. On reporting for duty in Nov. he was assigned, notwithstanding the hostility of Jefferson Davis, to the military department of Tennessee. In April, 1863, he reported himself still unfit for active service. In the spring following he made an attempt to relieve Vicksburg, which was besieged by Grant, but was defeated at Jackson, May 14, and retreated to Canton. After the defeat of Bragg by gen. Grant at Chattanooga, Nov. 25, 1863, Johnston was put in command of all the forces of the s.w. With 55,000 men he first occupied the fortified position of Dalton, Ga. Gen. Sherman attacked him with a superior force, and he was obliged to fall back first to Resaca, thence, after a severe battle, to Altoona pass, to Kenesaw mountain, and across the Chattahoochee. Gen. Sherman threatening his line of communication with Atlanta, his base of supply, and a place of great military importance, Johnston reached Atlanta in July, and determined to hold it to the last. But the authorities at Richmond were dissatisfied, and, July 17, ordered him to turn over his command to gen. Hood. Near the close of Feb., 1865, after Sherman had captured Atlanta, and marched without opposition to Savannah and into South Carolina, Johnston, at the earnest request of gen. Lee, was assigned to the command of the remnant of the army of the Tennessee, and of all the troops in South Carolina, Georgia, and Florida, and "to concentrate all available forces and drive back Sherman." But his force being inferior to that of Sherman he was defeated at Bentonville, N. C. Having learned that Lee had surrendered the army of Virginia to Grant, he capitulated to Sherman at Durham's station, N. C. Since the close of the war he has resided at Savannah, actively engaged in agricultural, commercial, and railroad enterprises. He has been considered one of the ablest generals, and by some the ablest in the confederate service. In 1878 he was proposed as a candidate for the U. S. senate from Georgia. He has published a *Narrative of His Military Operations* during the war.

JOHNSTON, SAMUEL, LL.D., 1733–1816; b. Dundee, Scotland; brought to North Carolina in infancy; was admitted to the bar; was a member of four provincial con-

gresses, presiding over the first two; a member of the continental congress, 1781-82; governor of North Carolina, 1788–89; U. S. senator, 1789–93; judge of the supreme court, 1800–3.

JOHN'STONE, a manufacturing t. of Scotland in the co. of Renfrew, was founded in 1781, and is situated on the Black Cart, about 3 m. w. of Paisley. It contains several cotton factories, a flax-mill, brass and iron foundries, and machine-shops. Pop. '81, 9,267.

JOHNSTONE, James T. W., an eminent chemist, was b. at Paisley in 1796, and died at Durham in 1853. He was of humble parentage, and was for the most part self-educated. In 1825 he removed to Durham, where he opened a school, which he continued till 1830, when, having married a lady of considerable fortune, he resolved to carry out the plan which he had long desired, of devoting himself to the study of chemistry. He accordingly repaired to Stockholm, and became the pupil of Berzelius, the most celebrated chemist of the time; and his reputation rose so rapidly, that in 1833, while still pursuing his studies abroad, he was invited to take the readership in chemistry and mineralogy in the newly-established university of Durham. For some time after his return from the continent he resided in Edinburgh, and held the post of chemist to the agricultural society; but shortly after its dissolution, he took up his permanent residence at Durham. It is as an agricultural chemist that he is chiefly known. His *Catechism of Agricultural Chemistry and Geology* has gone through more than fifty editions, and has been translated into almost every European language; and his *Lectures on Agricultural Chemistry and Geology* are held in high esteem. The last of his works was his *Chemistry of Common Life*, which originally appeared in *Blackwood's Magazine*, and has since gone through two editions. In the summer of 1853, while traveling on the continent, apparently in his usual health, he was seized with spitting of blood, which terminated in a rapid decline.

JOHNSTONE, Robert, b. in the latter half of the 16th c., was a historian whose works were at one period highly valued. Of his personal history little is known, except that he went to London; accumulated a large fortune, bequeathed considerable sums to the university of Edinburgh, and to various towns in Annandale, the home of his ancestors, and died in 1639. His *Historia Rerum Brittanicarum, etc., ab anno* 1572 *ad annum* 1628, intended as a supplement to Buchanan's work, possessed real merit.

JOHNSTOWN, a v. in New York on Cayadutta creek, a branch of the Mohawk river; 48 m. n.w. of Albany; pop. '80, 5,013; connected with Fonda, on the New York Central railroad by the Fonda, Johnstown and Gloversville railroad. It has 9 churches, 2 banks, a union school, 3 weekly newspapers, 3 hotels, gas works, planing and grist mills, factories for gloves and mittens, and establishments for the dressing of skins and leather. The population of the town, which includes Gloversville and Johnstown villages, is 16,626.

JOHNSTOWN, a borough of Cambria co., Penn., at the junction of Conemaugh river and Stony creek, on the Pennsylvania canal and railroad; 78 m. e. of Pittsburg, 39 m. s.w. of Altoona. The extensive works of the Cambria iron co., employing 1,600 men in making iron and steel rails for railroads, are in this borough. It has also 16 churches, a convent, an academy, a national and savings bank, a daily and 1 weekly newspaper, tanneries, flour, woolen, and planing mills. Pop. '80, 8,380.

JOIGNY (anc. *Joviniacum*), an old walled t. of France, in the department of Yonne, about 90 m. s.e. of Paris, noted for its red wines and extensive trade in wool. Pop. '76, 5,975.

JOINDER OF PARTIES, in law, is a phrase signifying that persons having a common interest and a common responsibility in any matter or subject are to be joined in any action at law relating thereto. Such joinder arises generally out of joint contract, ownership, or wrong done. When two or more persons are joined in a contract, they must be joined also in any action arising therefrom. If one of two joint parties die, the rule gives way, and the survivor either sues or is sued as the case may be. When the parties are so numerous that they cannot all be brought into court, one of them may sue for the benefit of the whole; as where an administrator is called to render an account to many creditors of moneys in his hands, one creditor may bring an action not only for himself, but also for all the others. In cases of tort the parties responsible are not necessarily all joined as defendants, but where two or more persons are jointly injured they should be joined as plaintiffs, but not where the injury is to the person. The practice in respect to husband and wife is modified by the rule of the common law which merges the legal existence of the latter in that of the former. But by the common law they must be joined for torts committed by the wife before or during marriage, and must join as plaintiffs for personal injuries to the wife, or injuries to her property before marriage. And they must join and be joined in actions or contracts made by the wife before marriage, in actions arising from the wife's position as executrix and administratrix, and in many other cases. In New York and several other states, however, this rule has been set aside in many cases by recent legislation, which recognizes the personality of the wife in the same way as if she were unmarried.

In courts of law a failure to make the proper persons parties is fatal to the action; but courts of equity are not so strict.

JOINERY, the art of joining or framing together the wooden finishings of buildings, such as the doors, windows, shutters, stairs, etc. See CARPENTRY.

JOINT AND SEVERAL, a legal phrase in England and Ireland, meaning that a contract or obligation is made by, or in favor of, each of several parties, independently as well as jointly with the others. The general rule of law is, that a contract of several persons is joint, and not several—that is to say, if it is sought to be enforced against them, they must all be sued together, and an action cannot be brought against one. Thus, for example, if A, B, and C jointly accept a bill, or make a promissory-note, without saying, "we jointly *and severally* promise, etc.," the whole of them must be sued on such bill. If, however, any one pay the whole debt, he can sue his co-contractors for their respective contribution or proportion—namely, one-third from each. If, on the other hand, the parties had, by express words, jointly *and severally* made the promissory-note, or bound themselves, then the creditor could sue any one of them he pleases, without taking any notice of the rest. Whichever of them, however, first paid the debt, would be equally entitled to sue his co-debtors to contribute their fair proportions. So, if a contract is made in favor of two or more persons, the general rule is, that all of them must join in any action brought to enforce the contract. But in some cases, when a contract is capable of being separated into distinct interests, it is not necessary that all of the creditors should sue. Much depends on the nature of the contract, the situation and relations of the parties, and who paid the price or consideration. In Scotland the phrase conjunctly and severally is more frequently used than jointly and severally, though the meaning is the same. There are, however, some differences between the laws of England and Scotland on the subject. In Scotland the general rule is the reverse of what it is in England. When a contract is joint, each is concerned and liable only for his share; but when it is expressly stated to be a conjunct contract, each is liable for the whole. Moreover, where one of several debtors is discharged without an express reservation of the remedy against the rest, this operates in England as a discharge to the whole; whereas in Scotland it operates only as a discharge of that one.

JOINT AND SEVERAL (*ante*), a legal phrase defining the liability of two or more persons for a debt which they owe in common. It implies that each individual debtor is responsible not merely for a relative proportion of the indebtedness, but for the whole, and may be sued therefor if the creditor so elect. It might happen that all the debtors save one have become insolvent, in which case the one who is solvent may be compelled to pay the whole debt. In that case he will have a claim in law upon his co-debtors for their respective portions of the common indebtedness, and no more; their responsibility to each other being determined by a different rule from that which applies to their common relation to the creditor. In equity, however, those who are solvent are required to contribute equally toward the discharge of the entire debt. A joint and several obligation may either be created by the express language of a contract or covenant, or arise by necessary or fair implication of terms. It is usual to employ the words, "we jointly and severally," but any other language fairly implying the same thing is equally binding. A joint and several obligation may also arise from the legal relations of the parties. If the creditor grant a release under seal to one of several joint debtors, he will thereby release them all. If a judgment against one be returned unsatisfied, it will not bar an action against the others. A joint and several liability may also arise in cases of tort; and when this happens the injured party may sue one, any, or all, of the responsible parties. Full damages may be recovered from the person prosecuted, and he will have no claim upon the other wrong-doers unless he can show that he was not himself willfully or intentionally a participant in the wrong complained of.

JOINT-FIR. See SEA-GRAPE.

JOINT OWNER is, in English law, a person who is one of several owners of property. The property may be either personal or real, goods or land. One of the characteristics of this ownership is, that if one of the parties dies, his interest accrues to the others, and does not go to the deceased co-owner's heirs or representatives. Thus, if A and B are joint owners of a horse, and A dies, the horse then belongs entirely to B. So it is with real property, such as houses, lands, and estates. This is called the doctrine of survivorship. Sometimes in wills and deeds it is not clearly expressed whether the property was given to A and B as joint tenants or owners, or as tenants in common. The chief difference between these two descriptions of owners is, that if one tenant in common dies, his share does not go to the other tenants in common, but belongs to his representatives or heirs. Hence, in doubtful cases, a court of equity generally inclines to hold that a tenancy in common was meant rather than a joint tenancy, for the former is the more fair of the two kinds of ownership. In all cases, however, it is in the power of a joint owner to convert his joint tenancy into a tenancy in common, by simply executing a deed of partition or alienation, if the property consist of land; or selling his share, if it consist of personalty. And there is an exception as to the survivorship in the case of a firm of partners, for in that case, when one partner dies, his share does not

accrue to his co-partners, but belongs to his own personal representatives. This is said to be an exception to the general rule of joint ownership, created for the benefit of trade, so that, in the case of a firm, the ownership is an ownership in common, and not joint ownership. In Scotland the general rule is different from what prevails in England, and joint property is there always equivalent to what is called in England property held in common, and not joint in the above sense. It requires express words in Scotland to make the property be held so as to be equivalent to what is joint property in England.

JOINTS, in anatomy. A joint or articulation may be defined to be the union of any two segments of the skeleton of an animal body through the intervention of a structure or structures of a different nature. The textures which enter into the formation of the more complex joints are bone, cartilage, fibro-cartilage, ligaments, and synovial membrane. Bone forms the fundamental part of all joints; ligament, in various modifications, is employed as the bond of union between the bony segments; while the three remaining textures chiefly occur in those joints in which there is free motion. The joints vary in the degree of motion from almost perfect immobility to the greatest amount and extent of motion that are compatible with the maintenance of the bony segments in their proper relation with each other.

Joints have been divided by anatomists into two great classes, to which the terms *synarthrosis* and *diarthrosis* are applied. In synarthrosis the parts are continuous—that is to say, there is no synovial sac intervening between the bones; and the joints belonging to this class are so very limited in their motion as to be considered by some as immovable; while in diarthrosis the articular surface of each of the bones is covered with cartilage, and between these cartilaginous plates is a synovial sac; and mobility is the distinguishing feature of this class of joints. In briefly describing the leading varieties of these two classes of joints we shall, as far as possible, avoid the barbarous terms which have been introduced into this department of anatomy.

In synarthrosis the articulation is said to be by *suture* when the bones seem to grow somewhat into one another, and to become interlocked and dovetailed together, each bone having a jagged or serrated margin, or when there is a degree of beveling of one bone, so that it is overlapped by the other. Both these kinds of suture are at once seen in the human skull, the serrated suture being well seen in the union of the two parietal bones, the beveled suture being shown in the overlapping of the temporal bone above the side of the parietal, and a combination of the two being exhibited by the coronal suture between the frontal bone and the anterior edges of the parietal bones. In all these there is a thin ligamentous membrane interposed between the bones, which disappears as the growth of the cranium becomes completed.

When a slight amount of motion of one bone upon another is required to be combined with great strength, the contiguous surfaces of the bones are united by a thick and strong layer of fibro-cartilage, with which a little elastic tissue is intermixed. This is an intermediate variety between the two classes of joints, but approximates most nearly to synarthrosis. As examples of this kind of joint may be mentioned the articulation between the bodies of the vertebræ and that between the two pubic bones at what is termed the symphysis. See Pelvis.

In diarthrosis the degree and nature of the motion are very various. There may be merely a little *gliding* motion between the ends of the bones, as, for example, in the articulations between the various bones of the carpus and tarsus. See Hand and Foot. In these cases the surfaces are plane, or one is slightly concave and the other slightly convex; and the motion is limited in extent and direction by the ligaments of the joint, or by some projecting point of one of the bones. In some cases instead of a slight concavity and convexity, one bone presents a cup-like depression, while the termination of the other assumes a hemispherical, or more or less globular shape. Hence the name of *ball and socket* that is applied to such joints. The best example of this variety is the hip-joint (q.v.), and the next best is the shoulder. In these joints the ball is kept in apposition with the socket by means of what is termed a *capsular* ligament, which may be described as a barrel-shaped expansion of ligamentous structure, attached by its extremities around the margin of the articular surfaces composing the joint, and forming a complete investment of it, but not so tight as materially to restrict its movements. This species of joint is capable of motion of all kinds, as any one may readily test for himself, especially in the shoulder-joint.

Another important variety of articulation is the hinge-joint, in which the contiguous surfaces are marked with elevations and depressions, which exactly fit into each other, so as to restrict motion to one direction. The elbow and ankle joints, and the joints of the fingers and toes, are the best examples of this variety. The knee-joint is a less perfect example, because in certain positions it is capable of a slight rotation. These hinge-joints are always provided with strong lateral ligaments. The shells of bivalve mollusks are united by a very strong and perfect hinge-joint.

The last kind of joint requiring notice is that which admits only of rotatory motion. A pivot and a ring are the essential parts of this joint, the ring being generally formed partly of bone and partly of ligament. The best example of this articulation is that between the atlas (the first vertebra) and the odontoid or tooth-like process of the axis (the second vertebra). See Hand.

Diseases of the Joints.—Formerly all the severer forms of diseases of the joints were vaguely designated under the one general term *white swelling;* but during the last half century, thanks to the labors of modern surgeons, amongst whom the name of the late sir Benjamin Brodie stands prominently conspicuous, the diseases of the joints are tolerably well understood, and can be discriminated from one another with very considerable accuracy.

In diseases of the joints we may have one or more of the following textures affected: (1) the synovial membrane; (2) the cartilage; and (3) the bones themselves.

The synovial membrane may undergo either acute or chronic inflammation, giving rise to the serious affections known as acute and chronic synovitis (see SYNOVIAL MEMBRANES AND FLUID).

Loose substances of a fibrous structure, and usually resembling a small bean in size and shape, sometimes occur in joints, especially in the knee-joint. They commence as little pendulous growths upon the synovial membrane, which after a time become detached. When they get between the ends of the bones, which they are apt to do during exercise, they cause a sudden and often a most excruciating pain, which is often followed by inflammation, and arrest all motion of the joint. These symptoms are not relieved till, by gentle flexion and manipulation, the loose cartilage (as it is usually termed) has been removed to a position in which it ceases to give annoyance. When the displacement of the loose body is only occasional, and does not cause intensely severe pain, the treatment should be limited to the application of an elastic bandage or a tightly fitting knee-cap, which should be constantly worn, with the view of restraining the loose body to a position in which it is inoffensive. If, however, this palliative treatment fails, the offending body must be removed by subcutaneous incision, which avoids the danger of a direct wound into the joint.

The cartilage may be affected in various ways. There may be (1) simple destruction of cartilage; (2) scrofulous destruction of cartilage; (3) hypertrophy of cartilage; (4) atrophy of cartilage, and other modified forms of disease of this texture, all of which, especially the second, are of a very serious character, but not of a nature that admits of popular explanation.

The most important diseases of the osseous structures of the joints are (1) ulcer and (2) caries. These diseases often, but not always, begin with the disorganization of cartilage, and then extend to the bones. Sometimes, however, they commence in the bones. The consideration of the symptoms and general treatment of these diseases would be out of place in these pages, but a reference to one very important mode of treating articular caries will be found in the article RESECTION OF JOINTS. Several of the preceding diseases, even when the result of our treatment may be regarded as satisfactory, leave a certain amount of stiffness of the joint (sometimes extending to perfect immobility), to which the term *ankylosis* (q.v.) is applied.

JOINT-STOCK COMPANY, an association of individuals who unite to carry out a particular object of a private nature by each taking and paying for shares in the common stock. The object of the association may be to manufacture some species of article, to conduct some branch of trade or commerce, the business of banking or insurance, or in general to do whatever work of a private nature any individual can do; but when the object is to execute a public undertaking, such as a railway, a canal, harbor, or other work of importance, the company is not called a joint-stock company, but a public company, and a special act of parliament is required in order to establish it and regulate its proceedings. In many respects the proceedings of railway, canal, and public companies resemble those of what are called joint-stock companies. In ordinary circumstances, the capital or stock of a joint-stock company is beyond what any single individual, however wealthy, would be able or inclined to adventure; it is mainly on this account that the joining of parties together to undertake risks is expedient and unavoidable; though there may be instances, as in the case of co-operation (q.v.), where a union of small sums by a large number of persons is for peculiar reasons recommendable. Joint-stock companies are of comparatively modern origin, and they can exist with a chance of success only in a community possessing good business notions and habits, along with a spirit of enterprise, and where there is that degree of mutual confidence which will give stability to the concern. Accordingly, from a concurrence of favorable circumstances, Great Britain has taken the lead in this kind of undertakings, which, however, have also been carried to maturity on a comprehensive plan in the Netherlands and United States. In France this method of commercial association is of more recent growth, and appears still to require the fostering care of the state.

The usual process of commencing a joint-stock company is to issue a prospectus, detailing the object of the undertaking, inviting the subscription of shares, and specifying the probable profits. As the proposed company necessarily requires a paid secretary, who is in effect to be its constructer and future *attaché*, it too frequently happens that in periods of ease in the money market, scheming solicitors and others devise projects of this kind, and induce inexperienced capitalists to take shares; the result often being a collapse of the company, to the loss of all concerned, the projector alone excepted. On this account scrupulous care is necessary in making such investments, to see that the proposed companies are of genuine worth, and to be administered by persons of thorough integrity.

Every joint-stock company sets out on certain rules of management, which receive the approval of the shareholders, who name a chairman and board of directors, and these, on being appointed, choose subordinate officials. Whatever be the rules, and also the implied responsibilities, the practice is to allow considerable latitude to the chairman and other directors in conducting the affairs of the company, for they alone are in a position to form a correct judgment on points deeply concerning the character and welfare of the association. As, with the best intentions, they may fall into error, and thereby incur heavy losses of capital, it is reasonable to hold them blameless, unless chargeable with fraud in their representations and general dealings. Ordinarily, and with reckless imprudence, shareholders ask no questions, and experience no suspicions as long as they are getting satisfactory dividends—an indifference to consequences which sometimes suffers a severe retribution.

Joint-stock companies are at best a clumsy and often not very satisfactory method for accomplishing a particular purpose. Conducted by directors or managers with whatever dexterity, they fall immeasurably behind as regards the energy, breadth of calculation, vigilance, and promptitude with which a business may be conducted by a single individual, or by two or three active partners, ready on the instant to take advantage of every important turn in the market. Unless, therefore, in the exceptional circumstances referred to, and also in gigantic concerns which no single individual or ordinary copartnery would undertake, joint-stock companies are economically inexpedient.

The legislature has on different occasions interposed to regulate the principles of joint-stock companies, and protect the public against the injuries which they may recklessly inflict. The safest undertakings are those of a public nature, and which are therefore incorporated by special act of parliament, for besides that their rules have been scrutinized by committees of the commons and lords in terms of certain standing orders, the liability of shareholders is limited expressly to the amount of their respective stocks. Railway companies are of this category. Where there is no such limitation by statute, any single shareholder incurs a responsibility equal to the whole debts of the concern, and he can seek relief only against his brother shareholders conjointly or severally. The appalling nature of this responsibility, and the necessity for as far as possible averting it, have induced the legislature to empower the organization of companies on a method of limited responsibility; in this respect copying a plan which had worked successfully in the United States. To participate in the benefit of this limitation, companies need to be publicly registered according to certain statutory obligations, by which means all have an opportunity of judging of their character. We add a brief analysis of the laws affecting joint-stock companies without and with limited liability.

Numerous statutes have been passed during the last 30 years in England, Scotland and Ireland, to regulate the constitution and proceedings of joint-stock companies, and there were separate statutes for each kingdom, and also for different kinds of companies in each kingdom. The principle of limited liability was first introduced in 1856. All these separate statutes, which led to much confusion, have been now repealed, and replaced by one consolidated statute, called the companies' act, 1862, 25 and 26 Vict. c. 89, which, amended by 30 and 31 Vict. c. 131, constitutes the code of joint-stock companies now applicable to the United Kingdom. This general act contains provisions for enabling existing companies previously registered to register themselves under the new act. The same formalities are made applicable, with slight variations, to all joint-stock companies, whether limited or unlimited. The grand distinction between limited and unlimited companies is that whereas, formerly, if a company contracted debts, no matter how large, every member was liable, if his co-members proved to be unable to pay their proportions, to pay the whole of these debts, even to the last shilling of his fortune—a result which proved ruinous to the rich members; now, on the other hand, if the company is limited, though it contract debts however large, yet each member can in no event be called on to pay more than he expressly guaranteed; thus he knows at the outset the worst that can befall him. Hence it follows that if a limited company contract excessive debts beyond what the members are bound to pay, it is the creditors alone who will chiefly suffer; but they have such ample means of satisfying themselves beforehand about the position and capabilities of the company, by reason of the publicity and access to books now provided, that they can only blame themselves if they credulously give too large credit.

It may be also noticed, before stating the details more particularly, that no partnership of bankers which consists of more than ten persons shall be formed in future, unless it is registered and conducts its business under the companies' act, 1862; and other partnerships consisting of more than 20 persons, are in like manner compelled to register as a company, unless they are already registered, or are formed by some act of parliament or letters patent.

The subject will be most conveniently noticed under certain heads.

1. *Constitution and Incorporation of Companies and Associations.*—Any seven or more persons associated for any lawful purpose may subscribe a memorandum of association, and may define their liability as follows. They may limit their liability either to the

amount, if any, unpaid on their shares, or to such amount as they may respectively undertake to contribute to the assets of the company, in the event of its being wound up. If the liability is limited by shares, then the word "limited" must be added to the name of the company; and the amount of capital, object, place of business, and declaration of the limit, must be defined in the memorandum of association. If the liability is limited by guarantee the word "limited" must also be added, and the amount of guarantee defined, so as to extend to all liabilities incurred while the party is a member, and within one year after. If the company is formed on the principle of no limit being placed on the liability of its members, the declaration of any limit is omitted, and it is called an unlimited company. The memorandum of association is to be stamped and signed by each subscriber in presence of one witness, and when registered, it binds the company and members. A company in general cannot alter this memorandum of association, unless where it is a company limited by shares, and wishes to increase its capital or shares. A limited company may, however, have directors and managers and managing director with unlimited liability. Besides the memorandum of association, there must be articles of association, also signed by the subscribers, stating the rules of the company; or if the company is limited by shares, and has no such articles, then the rules stated in schedule A to the act occupy their place. The articles of association must be printed. The memorandum and articles must be delivered to the registrar of joint-stock companies, who shall register the same, and grant a certificate of incorporation. Each member is entitled, on request, and payment of 1s., to have forwarded to him a copy of the memorandum and articles of association, otherwise the company forfeits a penalty of £1 in each case. Companies are prohibited from adopting the same name as another company, and in some cases they cannot, without leave of the board of trade, hold more than 2 acres of land.

2. *Distribution of Capital and Liability of Members.*—The interest or share of each member is part of his personal, and not real estate. A member is entitled to have his name entered on the register of members, which contains the name and address of each, his date of entry, his shares, etc. An annual list is to be made out of all members, with the name, address, and occupation of each, as well as the amount of capital, shares, calls, etc., possessed and paid by each, and this list is to be sent to the registrar of joint-stock companies for inspection. Every member is entitled to inspect at the office of the company the register of members gratis, and any other person is also entitled to do so on payment of 1s., or such member or person may demand a copy on payment of 6d. for every 100 words. If the name of a person is without cause entered or omitted in the register, he can set the matter right by application to the court. When a company is wound up every member, past and present, must contribute towards the assets enough to pay the debts of the company, subject to the following qualifications: 1. No past member shall be liable who has ceased for one year to be a member; 2. No past member is liable to contribute to any debt contracted after he ceased to be a member; 3. No past member shall be liable to contribute, unless the existing members are unable to pay the debts; 4. In case of a limited company, no member is bound to pay more than the amount unpaid on shares, or the amount guaranteed by him to be paid, according to the memorandum of association. In insurance companies, if the policy or contract makes the funds alone liable, such contract will remain good. If, at the winding up, any dividend is due to a member, this is to be deemed part payment of his contribution. The result, therefore, is that in all unlimited companies, while one rich member may be liable to his last shilling to pay the whole debts of the company, in the event of his co-members not being able to bear their shares of these debts, in limited companies each member can never be liable to pay more than the maximum share or guarantee, whatever be the amount of the company's debts, and whether the other members pay their shares or not.

3. *Management and Administration of Companies.*—Each company must have an office where its business is carried on, and give notice thereof to the registrar. If the company is limited it must have its name painted up in a conspicuous place outside its office, and its name must, under a penalty, be printed or engraved on all its notices, advertisements, bills of exchange, checks, receipts, etc. Every limited company must also keep a register of mortgages affecting its property, which any member or creditor is entitled to inspect at all reasonable times. Some companies—viz., limited banking, insurance, deposit, provident or benefit societies—must also each year make out and suspend in their offices a statement of their debts and assets. Every company not having a capital divided into shares must keep at its office a register of its directors and managers. No company is to carry on business when the number of members is less than seven, otherwise each such member, if cognizant of the fact, shall be liable for the whole debts of the company. A general meeting of the company must be held once at least every year. The company may, in general meeting, alter its regulations by special resolution, passed by not less than three-fourths of the members, and a copy thereof must be sent to the registrar and given to each member. The board of trade may appoint one or more inspectors to examine and report on the affairs of the company on the following application: 1, in case of a banking company having a capital divided into shares, on the application of members holding one-third or more of the shares; 2, in the case of any other company with shares, on the application of members holding one-fifth or more of the shares; 3, in the case of any company not having a capital divided into

shares, on the application of one-fifth or more of the members. The reasons of the application must, however, be supported by satisfactory evidence. The expenses of such examination shall fall on the members requiring it, unless the board of trade order them to be paid out of the company's funds. The company itself may also by special resolution appoint inspectors to report on the company's affairs.

4. *Winding up of Companies.*—A company may be wound up whenever it passes a special resolution to that effect; also, whenever it does not commence business within a year after incorporation, or suspends its business for a whole year; also, whenever its members are reduced to less than seven; also, whenever it is unable to pay its debts; and lastly, whenever the court thinks it is just and equitable that it should be wound up. A company is in the above sense deemed to be unable to pay its debts whenever a creditor to whom the company owes a debt above £50 has formally demanded in writing payment of such debt, and the company for three weeks have neglected to pay, or secure, or compound for it. Other tests of being unable to pay its debts are when the company allows execution to issue for a debt, etc. Application may be made to wind up the company by petition presented by any creditor or contributory of the company. And whenever an order is made by the court for winding up, all actions and suits are to be stayed, and the remedy of winding up then becomes the exclusive remedy. In the process of winding up the court is to have regard to the wishes of the creditors or contributories. In order to conduct the proceedings in winding up, and to assist the court, official liquidators may be appointed by such court, and the liquidators are thereupon invested with full powers to bring and defend actions, sell property, and do all things necessary for winding up the company's affairs, and may appoint a solicitor to assist in performing these duties. The court, also, after an order to wind up, settles a list of contributories, i. e., of all persons who are bound to contribute to pay the debts of the company; also makes calls on such contributories; and may summon suspected persons who have property of the company. Besides a compulsory winding up of a company there is also a power of voluntary winding up, whenever a special resolution has been passed to that effect, or when the company has found its liabilities too great to allow it to go on. Liquidators are then appointed, with the same powers as in the other case. There is also a third mode of winding up, which is called a winding up subject to the supervision of the court. The liquidators have power to compromise calls and liabilities to calls, as well as debts present or future, upon such terms as may be reasonable. And where directors have misapplied moneys, or been guilty of breach of trust, the court, notwithstanding he is criminally responsible, may compel him to repay moneys so misapplied. The court may also order directors or officers of the company to be prosecuted, and the costs to be paid out of the assets.

5. *Registration.*—The appointment of registrars of joint-stock companies is made by the board of trade, and there must be at least one office for registration in each of the three kingdoms. Every person is entitled to inspect the documents kept by the registrar, on paying a fee not exceeding 1s., and he may require a copy or extract of documents at a fee not exceeding 6d. for each folio.

Moreover, as regards other remedies, it is now a criminal offense for directors of companies to declare and publish fraudulent accounts; and not only are directors personally liable to third parties buying shares on the faith of such false reports, and suffering loss, but even the officials who knowingly contribute to these false reports are also personally liable in damages.

JOINT-STOCK COMPANY (*ante*). Until within a recent period joint-stock companies in the states of the American union were organized according to the rules of the common law; but now they are formed generally under statutory provisions intended to secure the rights of stockholders and to protect the public from imposition. These provisions are not precisely the same in all the states, though they have a common purpose and rest upon a common principle. In the state of New York the law prescribes the mode of organization, and when the conditions have been complied with the company is not dissolved by the death of one or more of its stockholders, but only by judgment of a court for fraud or other adequate cause. They may purchase, hold, and convey real estate within certain limitations growing out of the nature of their business; and, if the association is composed of seven or more stockholders, it may sue or be sued in the name of its president or treasurer. If judgment against it in such a suit be returned unsatisfied, then suits may be instituted against any or all of the shareholders individually as at common law. It is not a corporation in the usual sense, though possessing certain corporate powers; it is rather an enlarged copartnership under special regulations. In some of the American states there are no joint-stock companies distinct from corporations, but there are provisions for organizing similar associations, and modifying, for their benefit, the rule respecting the personal liability of the shareholders. Instead of following the example of England in assimilating partnerships to corporations, the laws here assimilate corporations to partnerships by making the shareholders personally responsible, to a greater or less degree, for the debts of the association; and this while the associations formed in accordance with the provisions of law are designated as corporations.

JOINT'RESS, in English law, means a lady who has a jointure (q.v.) secured to her.

JOINT TENANCY, in English law, the ownership of land or goods along with one or more other persons. See JOINT OWNER.

JOINT TENANCY (*ante*) is a term of the common law signifying the ownership—either in fee-simple, fee-tail, for life, for years, or at will, by two or more persons, with unity of interest, time, title, and possession—of an estate in real property. They must all hold upon one and the same conditions in every respect, each of them being regarded as having possession of every parcel and of the whole estate, not indeed for every purpose, but in respect of tenure and survivorship. For the purpose of alienation each joint tenant has a right only to his undivided relative share of the property, and the purchaser of such right simply succeeds to the position of the seller, but is not a joint tenant. If there are two tenants, each may dispose of an undivided half; if four, an undivided quarter, and so on; but the purchaser cannot enter upon the exclusive possession of his share, for the estate must remain undivided, subject to an entirety of interest on the part of each joint tenant, and to what is called the principle of survivorship, by which is meant the right of the last survivor to the whole property. In other words, when one of several joint tenants dies his share passes to the survivors, and so on until the last survivor takes the whole interest, whatever it may be, and upon his death it will pass to his heirs. An estate in joint tenancy can be created only by the specific act of the parties thereto. In this country such tenancy is very rare, the law presuming nothing in its favor, but inclining rather toward tenancy in common, which excludes the principle of survivorship and implies that the estate may be divided and each tenant take his proportionate share. Joint tenancy, in fact, is a relic of feudal times, when it was the policy of the law to keep large estates intact; whereas in this country the law favors the largest increase in the number of landholders, it being assumed that an interest in the soil enhances the dignity and loyalty of the citizen. As long ago as 1786 estates devised to two or more persons in the state of New York, without express provision that they were to be held in joint tenancy, were declared to be tenancies in common, and similar legislation exists in some other states. Joint tenancy is not favored in courts of equity, except when granted to co-trustees. Joint tenants are regarded in law as a single owner as respects third parties, and they must therefore all be joined in any suits that concern their joint estate. Possession by one tenant is deemed the possession of all, and a conveyance to one a conveyance to all. The possessor is liable, however, to his co-tenants for their share of the rents and profits, and liable, also, to an action for refusal to join them in making necessary repairs. Corporations cannot be joint tenants, either with each other or with individuals.

JOINT TRADE, or ADVENTURE, means a partnership limited as to a particular undertaking, and not, as in the usual case, for a series of years or a definite period of time. Hence the parties so joining have not the same liabilities as ordinary partners of a firm. Thus, a partnership of this kind may be limited to the working of a patent. In all such cases, the rights and liabilities of the parties are much less extensive than those of ordinary partnerships; but everything depends on the particulars of the contract made between them.

JOIN'TURE, in English law, means an estate or some interest for life or a longer period in an estate settled upon a wife, in the event of her surviving her husband. The jointure was at first adopted as a substitute for dower (q.v.), and dower is barred if a jointure is provided. The requisites of a jointure are: 1. That it must commence and take effect immediately on the husband's death; 2. It must be for the wife's life, or for some greater estate; 3. It must be given to the wife herself, and not merely to trustees for her; 4. It must be expressed to be made in satisfaction of her whole dower; 5. It must be made before marriage. The mode of giving a jointure is usually by way of a rent-charge on the husband's real estate, the effect of which is to allow her to remain in possession of the estate, or part of it, after the husband's death, so long as she lives. If a jointure be created out of an estate before marriage, the husband cannot sell the estate afterwards, so as to defeat the jointure. A jointure is not lost by the treason or felony of the husband, nor by the elopement and adultery of the wife.

In Scotland the word jointure is also frequently used in a similar sense to denote a conventional provision to a widow, consisting either of an annuity to her or of a life-rent assignation of rents, or of a life-rent of lands, called a locality. In whatever way the jointure is constituted, it also excludes the widow's terce, unless it is otherwise expressed.

JOINVILLE, a t. of France in the department of Haute-Marne, on the Marne; pop. 3,723; 27 m. n. of Chaumont. In its vicinity was the castle of the dukes of Guise. It has a communal college.

JOINVILLE, FRANÇOIS FERDINAND PHILIPPE LOUIS MARIE D'ORLEANS, Prince de, the third son of Louis Philippe, king of the French; b. Neuilly, 1818; began his naval studies soon after his father's accession in 1830, went to sea at the age of thirteen as pupil on board the frigate *Artemise;* received a liberal education in the colleges of France, and thenceforth devoted himself with zeal to his profession. In 1838 he received command of the corvette *Créole*, and joining the fleet of admiral Baudin, took a prominent part in the bombardment of St. Juan d'Ulloa and Vera Cruz, was the first to enter the gates of the city under a heavy fire, and was saved from death by the devotion of one of his officers.

In this attack he captured the Mexican general Arista, for which he received the cross of the legion of honor, and was made captain. In 1840 he was sent by the king to St. Helena in command of the frigate *La Belle Poule*, to bring to France the body of the emperor Napoleon. Returning from a visit to the United States he went to Rio de Janeiro, and in 1843 married Donna Francisca de Braganza, sister of Dom Pedro II. In the same year he was made rear-admiral, and took part in the sittings of the admiralty board, greatly assisting in solving the question of adapting steam to vessels of war, and urging the necessity of taking measures to effect it. In 1844, war breaking out between France and Morocco, he commanded the squadron that bombarded Tangiers and took Mogador. For his gallantry he was raised to the rank of vice-admiral. When the revolution of 1848 broke out and overthrew the constitutional monarchy, the prince de Joinville was in Algiers with his brother duc d'Aumale. They immediately sailed for England, and joined Louis Philippe in his exile at Claremont. While the ship *Ocean Monarch* was burning off Southampton, Aug. 24, 1848, the prince distinguished himself by aiding in the rescue of many of the passengers. In his seclusion he devoted himself to the education of his children, the colonization of his estates in Brazil, and writing for the press. In 1844 he had commenced in the *Revue des Deux Mondes* a series of articles on the French navy, one of which appearing in 1865 was a comparative review of the fleets of the United States and France, and excited much attention. In 1852 his estate in France was confiscated by Louis Napoleon. About twelve months after the war of the rebellion broke out he visited the United States with his two nephews, the count de Paris and the duke de Chartres. The nephews joined the staff of gen. McClellan, taking an active part in the Chickahominy campaign. At the battle of Gaines Hill especially they showed great courage. Gen. McClellan highly appreciated the military experience and sound judgment of the prince. Returning to England in 1862 he published an account of those events in a well-written article in the *Revue des Deux Mondes*. After the downfall of the empire in 1870 he returned with the other Orleanist princes. They were ordered to depart at once, but the prince, under an assumed name, took part in the campaign of the army of the Loire. His arrest was ordered by Gambetta, minister of war, and the police escorted him to a vessel to take him back to England. In 1871 the edict of banishment was abrogated by the French assembly, and he and his brother, duc d'Aumale, took their seats in the national assembly, Dec. 19, 1871. Among his articles in the *Revue des Deux Mondes* are *Note sur l'État des Forcés Navales de la France; Étude sur l'Escadre de la Méditerranée; La Guerre de Chine; La Guerre d'Amérique Campagne du Potomac.*

JOINVILLE, Jean, Sieur or Sire de, one of the earliest French historians, whose works possess much interest or value, was b. about 1224, of an old family, in Champagne, and held high offices under Thibaut IV., king of Navarre. In 1248 he joined Louis IX. of France with nine knights and 700 armed men in his crusade; shared that monarch's captivity; and returning to France in 1254 was frequently at his court, but declined to accompany him in his second crusade. After the death of Louis IX. the sieur de Joinville wrote his *Histoire de St. Louis,* one of the most valuable works in the whole literature of the middle ages, combining an excellence of style, then very rare, with a most interesting exhibition of individual character in the minute record of events. He died about the year 1318. The *Histoire de St. Louis* was first published in 1546; one in modernized French was published by Natalie de Wailly in 1873.

JOISTS, horizontal timbers (of lighter scantlings than the beams) used to support floors. See Floors.

JOKJOKERTA, or Tugyakarta, a Dutch residency of Java, on the southern coast, near the center of the island; 1232 sq.m.; pop. 441,799. It was formerly one of the important native states of Java. The soil is very fertile, producing rice, coffee, and tobacco. The teak-tree is very abundant. The volcano of Nerapi is 3,000 ft. high.

JOKTAN, one of the sons of Eber, a descendant from Shem, the progenitor of several tribes in southern Arabia, called Joktanites. The Arabs call him Kahtan. The principal Joktanite kingdom and the chief state of ancient Arabia was that of the Yemen, founded, as the Arabs say, by Yaarub, son or descendant of Kahtan or Joktan. This was the biblical kingdom of Sheba.

JO'LIBA. See Niger.

JOLIET, a city, and capital of Will co., Ill., in Joliet township, on both sides of the Des Plaines river; 35 m. s.w. of Chicago, on the Illinois and Michigan canal, and at the junction of the Chicago, Rock Island, and Pacific, the Chicago and Alton, and the Michigan Central railroads; pop. '80, 16,145. It has 12 churches, 3 chapels, 2 national and 4 private banks, 1 m., 2 daily and 4 weekly newspapers, 10 public schools, 2 high schools, a Roman Catholic academy, 2 convents, a public library. It has a paid fire department, is lighted with gas, and is well built. The city-hall is a fine edifice. The state-prison, near the city, is a splendid building, of fine gray limestone, the largest in the country, inclosing 16¼ acres, and built at a cost of more than $1,000,000. The city has extensive flour-mills, machine-shops, Bessemer steel works and rolling-mills, carriage shops, marble works, manufactures of builders' hardware, farming implements, sash, doors, and blinds, breweries, lime-kilns, and brickyards. Near the city are large quar-

ries of superior limestone, called Joliet limestone, of which the state-prison and many public edifices in Chicago are built. In these quarries 1200 men are employed. The canal and river here furnish abundant water-power. J. has 16 artesian wells.

JOLIET, Charles, b. in the department of Doubs, 1832. Until 1864 he was in the civil service, and subsequently devoted himself to journalism and miscellaneous literature. His *Le roman de deux jeunes Maries* and *Mademoiselle Chérubin* were very popular, and his novels on subjects pertainiug to the Franco-German war, 1870–71, gained for him a high reputation.

JOLIET, Louis, 1645–1700, b. Quebec; educated at the Jesuits' college for the priesthood, but abandoned the design, and going west engaged in the fur trade. In 1672 he was appointed by Frontenac, governor of Canada, to explore the Mississippi. He and père Marquette, starting from Michilimackinac, May 17, 1673, proceeded to Green bay, ascended the Fox river, obtained Indian guides to the Wisconsin, entered the Mississippi, June 17, 1637, and passing down, reached the Arkansas. Satisfied that the river flowed into the gulf of Mexico, and not into the Pacific ocean, they returned to lake Michigan, by the way of the Illinois river. Joliet preceding alone to Quebec, his canoe upset in the Lachine rapids, and he lost his maps and manuscripts. From memory he prepared a map and report of the expedition. He was appointed royal hydrographer at Quebec. In 1680 he received the grant of the seigneury of Anticosti island, to the development of whose fisheries and trade he devoted himself. In 1697 he obtained the seigneury of Joliette, which still belongs to his family.

JOLIETTE, a co. in Quebec, Canada, bordering on the St. Lawrence, drained by the river L'Assomption and several smaller streams, and traversed by the St. Lawrence and Industry railroad; 2,670 sq. m.; pop. '81, 21,988. Co. seat, Joliette.

JOLIETTE, a t., capital of Joliette co., Quebec, on L'Assomption river, 42 m. n.e. of Montreal; pop. '81, 3,268. A railway of 12 m. connects it with the St. Lawrence. It is on the St. Lawrence and Industry railroad. It contains grist and saw mills, a large foundry, a tannery, several stores, a college, convent, hospital, mechanics' institute, a French weekly newspaper. It has a weekly market, and does an extensive trade in agricultural products and in timber; and has quarries of limestone.

JOLLIVET, Pierre Jules, b. Paris, 1803; a historical painter. After spending some time in Madrid, he returned to Paris, and in 1831 exhibited *genre* pictures relating to Spanish history. In 1835 he gained the medal of the first class. His principal works are, "Louis VIII. taking the Oriflamme at St. Denis;" "Lara," in the Luxembourg; "Le Massacre des Innocents," at the museum of Rouen; "The Installation of the Magistrates in 1849." Among other paintings are, "Art in the Time of Pericles;" "The Jewels of Cornelia." He d. 1871.

JOLLY-BOAT (Dutch, *jolle*, a yawl), a small boat kept on board ship for the purpose of communicating with the shore. It is a broad, safe boat, and is specially devoted to the use of the steward and to the conveyance of his purchases from shore.

JOMARD, Edme François, 1775–1862; b. Versailles; studied at the école polytechnique; accompanied the army to Egypt in 1798 as a member of the scientific commission; was distinguished for his researches; returned in 1802, and was appointed secretary to the commission. He prepared the *Description de l'Eygpt*, and directed the engraving and printing of it for 20 years. The portions of this work which Jomard himself wrote, were published separately under the title of *Observations on Ancient and Modern Egypt; or, a Historical and Picturesque Description of its Monuments.* In 1821 he took part in founding the geographical society of Paris. In 1828 he was appointed *conservateur administrateur* in the royal library. At his suggestion Mehemet Ali sent several young men to Paris for education, who were placed under the direction of Jomard, forming what was called *institut des Egyptiens.* Mehemet's successor conferred upon him the honorary title of bey. Besides his work on Egypt referred to he published *Voyage à l'Oasis de Syonah; Remarques sur les Rapports de l'Éthiopie et de l'Egypte*, etc.

JOMELLI, Nicolo, 1714–74; b. Aversa, near Naples. Initiated in music by Muzillo he visited Naples in 1730, where he studied under Prota and Mancini, and afterwards at a conservatory under Feo and Leo. His first compositions were cantatas. Devoting himself to dramatic music he composed at the age of twenty-three his first opera, *Errore amoroso*, which was received with so much favor that he determined to cultivate theatrical composition. In 1738 he composed his first serious opera, *Odoardo.* In 1740 he was summoned to Rome, where he was warmly patronized by cardinal York, and composed two operas. The next year he went to Bologna, and composed *Ezio.* Returning to Rome he produced *Didone*, one of his best works. Invited to Venice he produced *Merope* for the Teatro Fenice, and a *Laudate* for the church of Santo Marco. While at Naples he brought out his opera *Eumene*, which was greatly applauded. At Bologna he studied church music under padre Martini. In 1745, visiting Vienna, he became an intimate friend of Metastasio, to whose conversation and criticisms he acknowledged his great indebtedness. He remained here two years, giving instruction in music to the empress Maria Theresa. In 1748, again called to Rome, he composed his opera *Artaserse*, also his famous oratorio, *La Passione*, and through the influence of cardinal Albani he was made the next year chapel-

master of St. Peter's in the Vatican. In 1754 he resigned that position and became chapel-master and court-composer to the duke of Würtemberg at Stütgart. Here he remained about 18 years, composing a large number of operas, among which was his *Missa pro Defunctis*, or *Requiem*, which displayed uncommon genius. In 1772 he returned to Naples, but his style had so much changed through the influence of German music that his operas were not popular. He was attacked with paralysis, but rallied, and composed a *Miserere*, which is pronounced the finest of his works. His known compositions are forty operas; five cantatas; four oratorios; thirty-four church compositions. Jomelli has been styled the "Glück of Italy."

JOMINI, Henri, Baron, b. Mar. 6, 1779, at Payerne, in the canton de Vaud, began his military career in a Swiss regiment in the French service, and afterwards, chiefly through the friendship of Ney, was raised to high military rank by the emperor Napoleon. In 1804 he began the publication of his *Traité des Grandes Operations Militaires.* He distinguished himself in active service during the retreat from Russia, but, offended at the treatment which he received from Napoleon, he passed over to the allies after the armistice of Plaeswitz, and entered the service of Russia. In 1828 he took an active part in the military operations at Varna; and in 1855 he settled at Brussels. Besides the work already mentioned, his *Histoire Critique et Militaire des Campagnes de la Révelution* (5 vols. Paris, 1806); his *Vie Politique et Militaire de Napoleon* (4 vols. Paris, 1827); and his *Tableau Analytique des Principales Combinaisons de la Guerre* (Petersb. 1830), are of great value to the military student. Baron Jomini, died at Passy, Mar. 22, 1869.

JONAH (Heb. *Yonah*, a "dove;" Gr. *Jonas*), a Hebrew prophet, son of Amittai, was, as we learn from 2 Kings xiv. 25, a native of Gath-hepher, a t. of Galilee in Zebulun, and not far from Phenicia. He appears to have flourished about the second half of the 8th c. B.C., in the reign of Jeroboam II., and was probably, therefore, the earliest of those prophets whose writings are extant. It has been urged by Rosenmüller and other critics that the miracle recorded in the book known under his name is not to be regarded as a historical fact, but only as an allegory, founded on the Phenician myth of Hercules rescuing Hesione from the sea-monster by leaping himself into its jaws, and for three days and three nights continuing to tear its entrails. The design of the author in incorporating this myth with the *actual* voyage of Jonah and the conversion of the heathen Ninevites was, it is suggested, to bring out more vividly the truth that God will not permit his merciful intentions to be frustrated by the disobedience even of a prophet. On the other hand, it has been thought by orthodox theologians generally that the language of Christ (Matt. xii. 39–41; xvi. 4; Luke xi. 29), and the manner in which it is mentioned in Josephus and the Apocrypha preclude the possibility of our supposing this miracle to be other than strictly historical. Jonah has been supposed by early authorities to have been the son of the widow of Sarepta (1 Kings xvii. 24), also to have been the pupil of Elisha. Jonah's tomb is shown at Nebi-Yunus (Prophet Jonah), near Mosul.—Leusden, *Jonas Illustratus* (Traj. 1692); Friedrichsen, *Kritischer Ueberblick der Ansichten vom Ruch Jonas* (Altona, 1817); Rosenmüller, *Proleg. in Jonam;* Drake's *Notes* (1853); also Ewald and the more recent commentators and critics.

JONAH, BOOK OF (Jonah, *ante*), has always been placed by the Jews among their canonical books, and is referred to as historical several times in the apocryphal books and by Josephus. The Savior also quoted it as historical, comparing his continuing three days in the grave to Jonah's continuing three days in the belly of the fish; and his preaching to the Jews to Jonah's preaching to the Ninevites. There is nothing incredible in its statement that God had prepared a great fish to receive Jonah after he had been cast into the sea. There are evidences of design in the constitution of all fish that swim in the sea, showing that they have been prepared for different purposes; and this fish could be prepared for this specific purpose as easily and wisely as any other fish for any other work. The book, though written by a prophet, is chiefly historical, and may be divided into three parts: I. The command to proclaim the threatened destruction of Nineveh; Jonah's attempt to evade the duty by taking a sea voyage; the storm, the falling of the lot on Jonah, followed by his confession and his being, at his own suggestion, cast into the sea; his apparent destruction by the sea monster, which, however, after three days threw him up again alive upon the shore. II. His thanksgiving after the deliverance, in which he recorded the prayers he had offered during his imprisonment and, with gratitude for the mercy shown to him, promised obedience to God's commands. III. The renewal of the command to go to Nineveh; Jonah's obedience and faithful utterance of the message intrusted to him; the humiliation and repentance of the Ninevites, from the king to the lowest subject, expressed by a universal fast, during which men and beasts were covered with sackcloth and did not taste either food or water (that in times of fasting beasts of burden were sometimes subjected to the same forms of humiliation as men, both Herodotus and Plutarch state); the withholding of the threatened destruction on their repentance, in accordance with a general principle of the divine government, announced afterwards to Jeremiah (xviii. 8); Jonah's discontent with the result, because it compromised his reputation as a prophet, and the emblematic method by which the Lord reproved him.

JONAS, Benjamin F. See page 887.

JONAS, Justus, 1493–1555; b. Nordhausen, Saxony; was professor of law at Erfurt, and, in 1521, of theology, at Wittenburg; preacher at Halle in 1541, and at Coburg in

1551. He was a prominent German reformer, an intimate friend of Luther; accompanied him to the diet at Worms and at Augsburg; assisted him in the translation of the Bible, and by his preaching and translation of the works of Luther and Melanchthon did much to promote the reformation. At the time of his death he was pastor and superintendent at Eisfeld. He published *Discussio pro Conjugio Sacerdotali*, and translated Melanchthon's *Defense of the Augsburg Confession* from Latin into German. He was a ready writer and speaker,

JONATHAN, son of Saul, who was the first king of Israel. With his armor-bearer only he attacked an army of the Philistines, who, in their surprise and confusion, turned their swords upon each other. Saul seeing this brought up his forces, and completed the rout. Jonathan, faint with hunger, tasted honey which dropped in a wood, not knowing that his father had prohibited food until evening, and would have been slain by his father but for the interference of the people. He loved David devotedly, though he knew that David was to succeed Saul in his stead, and his efforts to shield him from his father's wrath led Saul to seek to kill Jonathan also. He died in a disastrous battle with the Philistines on mount Gilboa, where, on the same day, his father and his two brothers also were slain.

JONATHAN BEN-UZZIEL, the translator of the Hebrew prophetical writings into Chaldee. He was a disciple of Hillel I., and lived about B.C. 30. Tradition has ascribed to him also the paraphrase of the Pentateuch known under the name of *Pseudo-Jonathan*, and the targums of the five books. The last is a compilation from ancient materials made by several persons, and is generally published, with the Hebrew text, in the Jewish editions of the Pentateuch. A Latin version of it is given in Walton's polyglott. His expositions were mostly on Haggai, Zachariah, and Malachi.

JONES, a co. of central Georgia, bounded w. by the Ocmulgee river; the s. part is traversed by the Georgia and Central railroad, and the s.e. portion by the Macon and Augusta line; 378 sq.m.; pop. '80, 11,613. The surface is hilly and the soil fertile. The staples are cotton and maize. Iron ore, granite, and quartz are found. Co. seat, Clinton.

JONES, a co. of e. Iowa, traversed by the Iowa Midland, the Davenport and St. Paul, the Sabula, Ackley, and Dakota railroads; 576 sq.m.; pop. '80, 21,052. The surface is undulating, diversified by prairie and forest; the soil is fertile. The chief products are wheat, oats, maize, potatoes, and hay. There are several manufactories for carriages, saddlery, tin, copper, and sheet-iron ware, and flour-mills.

JONES, a co. of s.e. Mississippi, drained by the Pascagoula river and its tributaries; 652 sq.m.; pop. '80, 3,828. It is thickly wooded, has a rolling surface and sandy soil. The staples are rice, maize, and sweet potatoes. Co. seat, Ellisville.

JONES, a co. of s.e. North Carolina, traversed by the river Trent; 425 sq.m.; pop. '80, 7,493. It is generally level, marshy, or sandy. Cypress and pine forests abound. The staples are cotton, tobacco, and maize. Co. seat, Trenton.

JONES, a co. of Central Texas; 1,204 sq. m. The co. is unorganized, but in '80 the U. S. census gave a pop. of 546. It is drained by the Brazos river. The soil is generally fertile. It is mostly prairie, and adapted to stock-raising. The principal town is Anson.

JONES, ANSON, 1798–1858; b. Mass.; began the practice of medicine in 1820; resided in Philadelphia, New Orleans, and South America, and finally settled in 1833 in Brazoria, Texas. He took part in the war between Texas and Mexico as a private soldier and surgeon in the Texan army. After Texas became an independent republic he was a member of the Texan congress, and in 1838 was sent as a minister to Washington. Afterwards he was a senator in the Texan congress, and in 1841 was appointed secretary of state by president Houston. In 1844 he was elected president of Texas for three years, retaining the office until Texas was annexed to the United States. He passed the latter years of his life in agricultural pursuits. He died by his own hand.

JONES, CHARLES COLCOCK, jr., b. Savannah, 1831; graduated at Princeton with honor in 1852; studied law in Philadelphia one year, and took his degree in the Dane law school of Harvard university in 1855; admitted to the bar in Savannah in 1856, soon taking high rank in his profession; was elected mayor of the city in 1860. On the passage of the ordinance of secession in 1861 he became lieutenant in the army of the rebellion, serving under gen. J. E. Johnston. After the war he removed to New York, where he has practiced law with success. He published ten works, among which are, *Historical Sketch of the Chatham Artillery during the Confederate Struggle for Independence; Ancient Tumuli in Georgia; Antiquities of the Southern Indians*, particularly of the Georgia tribes.

JONES, CHARLES W. See page 887.

JONES, FRANK. See page 887.

JONES, INIGO, a well-known English architect, was b. in London in 1572. Of his early history little is known till the time when the earl of Pembroke, attracted by his great aptitude at drawing, sent him abroad for four years to study the master-pieces of architecture in France, Germany, and Italy. While in Venice he paid particular attention to the works of Palladio, whose style he introduced into England, whence we sometimes hear Jones designated as the English "Palladio." In 1605 he was employed by James

I. in arranging the scenery, etc., for the masques of Ben Jonson, which were at that time the chief amusement of the court. Jonson afterwards satirized his fellow-laborer in *Bartholomew Fair*. In 1612 Jones revisited Italy, still further to improve his style, and on his return to England was appointed surveyor-general of the royal buildings. Jones was at this time accounted the first architect of England, and according to some the first of the age. He died in 1653. The state of architecture in England during Jones's time was an excellent foil to his genius, as the praise bestowed upon his works shows, but still in any age he would have ranked high as an architect. His masterpiece is considered to be the Banqueting House at Whitehall. Other works of his are the church of St. Paul, in Covent Garden, Ashburnham House, and Surgeons' Hall, which, however, are very mediocre.

JONES, J. Glancy, b. in the valley of the Conestoga, Penn., 1811; educated for the ministry, but devoted himself to the law; was deputy attorney-general of the state; member of congress, 1850; in 1858 appointed by president Buchanan minister to Austria, remaining there till Nov. 14, 1861. He d. 1878.

JONES, Jacob, 1770–1850; b. Del.; studied medicine and graduated at the university of Pennsylvania, but abandoned practice and became clerk of the supreme court of Delaware; was midshipman in the U. S. navy in 1799; captured in the frigate *Philadelphia* under Bainbridge in 1803, in the harbor of Tripoli, and remained a prisoner 18 months; was made commodore in 1810; commanded the U. S. sloop of war *Wasp* in 1812 when it captured the British ship *Frolic*. Both vessels were afterwards captured by the British ship *Poictiers* and taken to Bermuda. Released on parole he returned to the United States with the other Americans. He received from congress a vote of thanks and a gold medal, and was promoted in 1813 to the rank of post-captain, and placed in command of the *Macedonian* in the squadron of Decatur. After the peace he commanded the squadron in the Mediterranean and the Pacific, served some years as a commissioner of the naval board, and was governor of the naval asylum at Philadelphia.

JONES, Joel, ll.d., 1795–1860; b. Coventry, Conn.; graduated at Yale in 1817; practiced law at Easton, Penn.; was appointed in 1830 on a commission to revise the civil code of Pennsylvania; was one of the judges of the Philadelphia district court; elected president of Girard college in 1848; mayor of Philadelphia in 1849, returning to his profession after serving one term. He was distinguished not only for his legal learning, but for his theological and biblical researches. He contributed largely to literary journals and quarterlies, and published several works, the most important of which are: *The Story of Joseph; or, Patriarchal Age; The Knowledge of One Another in the Future State; Jesus and the Coming Glory.* He edited several English works on prophecy under the title of the *Literalist*, in 5 vols., with valuable additions of his own; and translated from the French *Outlines of a History of the Court of Rome and of the Temporal Power of the Popes*, with many original notes appended. *Notes on Scripture* was published by his widow. Judge Jones was an elder in the Presbyterian church, and held important positions in ecclesiastical boards.

JONES, John, 1729–91 b. Jamaica, N. Y., of Welsh descent; studied medicine at Rheims and Leyden; visited Edinburgh; returning, settled in New York, where he obtained an extensive practice and high reputation as an operator in surgery; was surgeon in the army at Crown Point in 1755; professor of surgery at the medical school of the college of New York in 1767. While New York was occupied by the British he relinquished his practice in the city, and retired to the country. He was for a time in the medical department of the army in 1780, where he was elected one of the physicians of the Pennsylvania hospital; and in 1787, on the institution of the college of physicians of Philadelphia, he was elected vice-president, and contributed to its transactions a valuable paper on anthrax. He was Washington's family physician in Philadelphia, and the intimate friend and physician of Franklin, whom he attended in his last illness—publishing an account of his death. He held a high rank in his profession. He published in 1776 *Plain Remedies upon Wounds and Fractures*, and subsequently other surgical works. A volume of his medical writings, with a memoir, has been published by Dr. Mease

JONES, John Paul, b. at Abrigland, in the stewartry of Kirkcudbright, Scotland, July 6, 1747, was the son of a gardener named John Paul. He became a sailor, was for a short time engaged in the slave-trade, and afterwards settled in Virginia, assuming the name of Jones. He ardently embraced the cause of the American colonies. When the congress, in 1775, resolved to fit out a naval force, he offered his services; and visiting the British coast in a brig of 18 guns, performed some remarkably bold exploits, and took advantage of his familiarity with the scenes of his boyhood to make a hostile visit to the shores of the Solway Firth. In 1779 he was appointed to the command of a small squadron of French ships displaying the American flag, with which he again visited the British coasts, causing great alarm and taking some prizes. The king of France made him a chevalier of the order of military merit. After the war was ended Jones attempted, along with John Ledyard, to establish a fur-trade between the n.w. coast of America and China, but failed. In 1787 he accepted an appointment in the Russian service, and the command of a fleet at the mouth of the Dneiper, with which he took an

active part in the Turkish war, but soon left the Russian service. He died at Paris, July 18, 1792. His funeral was attended by a deputation of the legislative assembly.

JONES, JOHN P. See page 887.

JONES, JOHN PAUL (*ante*), 1747–92, b. Kirkcudbrightshire, Scotland. His name was properly John Paul, that of Jones being afterwards assumed by him for a reason not given. At the age of 12 he was apprenticed to a merchant of Whitehaven engaged in the American trade, and soon went to sea in a vessel bound for Virginia. While in port he staid with his brother who was settled as a planter, improving his leisure in study, especially of navigation. The affairs of his merchant employer being embarrassed, his indentures were canceled, and he was almost immediately engaged as third mate of a slaver. In 1766, at the age of 19, he was received as chief mate to a slaver of Jamaica, but after a few voyages abandoned this life in disgust, and in 1768 sailed for Scotland as a passenger in a brigantine, but the master and mate dying on the voyage, Paul assumed command, and brought the vessel safely into port. For this service the owners, in 1768, made him captain and supercargo, and sent him to the West Indies. In a second voyage he was involved in difficulty with the carpenter, whom he was obliged to punish for mutiny and disrespect, and who afterwards joined another vessel, took fever, and died; his death was ascribed to the punishment inflicted by his commander. Paul was tried and honorably acquitted. He made his last visit to Scotland in 1771 where he was looked upon with distrust on account of his alleged cruelty to the carpenter. He continued after this in the West India trade, acquiring quite a fortune by commercial speculations. In 1773 he went to Virginia to settle the affairs of his brother, who had died intestate and childless, and remained on the estate which had fallen to him, devoting himself to agriculture. The American revolution now breaking out, having identified himself with the colonies, he offered himself to congress to serve in the navy, was accepted, commissioned as lieutenant, Dec. 23, 1775, and appointed first lieutenant of the *Alfred*, flag-ship. When the commander came on board Jones hoisted the American flag, now for the first time displayed, and bearing, it is believed, the device of a pine tree with a rattlesnake coiled at its root. From the *Alfred* he was transferred to the sloop *Providence*, in which he cruised among the West India islands, and in 47 days made 16 prizes, and destroyed the fishery at Isle Madam and Canso. Having finished this cruise he was put in command of the *Alfred* and *Providence* as captain, and sailed Nov. 2, 1776, from Newport, on an expedition to destroy the cape Breton fishery, capture the coal fleet, and liberate a hundred Americans confined at hard labor in the mines. The expedition was successful, four prizes being brought to Boston. In June, 1776, Jones was invested with the command of the *Ranger*, a new ship built for the service, and sailed Nov. 1, stopped in France to confer with the American commissioners, and then made a cruise upon the n. coast of England, seized the fort of Whitehaven, spiked its guns, burned some of the shipping, and kept England and Scotland in constant alarm. He conceived the project of capturing the earl of Selkirk on his fine estate near Kirkcudbright, in order to compel England to adopt a general system of exchange of prisoners, but this failed on account of the absence of the earl. His crew, however, stole the family plate, which Jones bought of them and restored. During this cruise on the English coast he captured the *Drake*, a superior vessel sent out to take him, and took her into Brest with 200 prisoners. He was cordially received by the American commissioners, and after much delay was appointed to the command of the ship *Duras*, changing the name to *Bon Homme Richard*. In 1779 he set out with a squadron of 5 vessels for the coast of Scotland, causing more terror among the inhabitants than before. He threatened to burn every ship in the harbor, but a strong wind drove him out to sea. Turning his course southward, he fell in with the British fleets of 41 sail, off Flamborough head, homeward bound from the Baltic, convoyed by two powerful men-of-war, the *Serapis* and the *Countess of Scarborough*. After a desperate and bloody battle of three hours the *Serapis* was captured, and the *Bon Homme Richard* was so damaged that it went to the bottom two days afterwards. For this splendid victory he was, on his arrival in Paris, presented by Louis XVI. with a gold-mounted sword bearing a flattering inscription, was invested with the cross of the order of military merit, and greatly honored by the government, the court, and the citizens. On his return to America congress voted him a splendid gold medal, and passed a resolution commending his "zeal, prudence, and intrepidity." He received also a very complimentary letter from gen. Washington. At the conclusion of peace Jones went to Paris as American agent for prize-money. In 1787 he entered the Russian service with the title of rear-admiral, and performed valuable services against the Turks; but on account of the jealousies and intrigues of the Russian officers he resigned, though strongly urged by Catherine to remain. He returned to France, and died of the dropsy. He was not, as has been said, a prey to want and neglect, but had the attendance of the queen's physician, was cheered by the presence of several kind friends, and honored with a public funeral by the national assembly.

JONES, JOHN SPARHAWK, D.D. See page 887.

JONES, JOHN WINTER, b. Lambeth, England, at the commencement of the present century; educated at St. Paul's school; studied law and became connected with the civil service in 1837. In 1856 he was placed in charge of the printed books at the British museum, and on the retirement of Panizzi in 1866 became the principal librarian. He

has contributed to the *New Biographical Dictionary of the Society for the Diffusion of Useful Knowledge,* besides editing several valuable works of early travels.

JONES, Joseph S. See page 887.

JONES, Noble Wimberly, 1724–1805; b. near London; son of Dr. Noble Jones; while he was young his father settled in Georgia. At an early age he held a military commission, and in 1761 was a member of the assembly. He took an active part in the war of the American revolution; was speaker of the first Georgia legislature; was a delegate to the second congress of the colonies in 1775; lost a son at the capture of Savannah in 1778; was taken prisoner at the fall of Charleston in 1780, and carried to St. Augustine; exchanged in 1781, and again sent to congress. He was president of the convention held for the revision of the state constitution in 1795.

JONES, Owen, 1809–74; b. Wales; was articled to an English architect, with whom he studied ornamentation, and afterwards spent four years in European travel. In 1834 he passed some time in Granada, where he made studies for his great work on the Alhambra. This publication was commenced in 1836 under the personal supervision of Mr. Jones, the manipulation of the stones employed in its vivid and accurate colored illustration, requiring great care and the nicest adaptation. The work appeared in 1842, after Mr. Jones had made a second visit to Granada, in a superb folio volume of richly-colored plates, under the title of *Plans, Elevations, Sections, and Details of the Alhambra,* etc., accompanied by a complete translation of the Arabic inscriptions and a historical notice of the kings of Granada, by Señor Pascual de Gayangos. The Messrs. Longman & Co., and other houses of London, having undertaken the publication of many costly works in chromatic printing, Mr. Jones's name was connected with most of them. He published in 1842 *Designs for Mosaic and Tessellated Pavements;* with Henry Noel Humphreys, in 1847–50, *Illuminated Books of the Middle Ages;* and *The Grammar of Ornament,* 1856; as to the last of which the London *Athenæum* said in 1857 that it was "beautiful enough to be the horn-book of angels." Besides his labors in authorship, Mr. Jones was practically engaged in London in the ornamentation and decoration of buildings. He directed the decoration of the Egyptian, Greek, Roman, and Alhambra courts of the Crystal palace at Sydenham; and also erected St. James's hall, Piccadilly.

JONES, Roger, 1789–1852; b. Westmoreland co., Va.; distinguished in the war with Great Britain in 1813; appointed second lieut. marine corps; was rapidly promoted for bravery; brevetted colonel in 1824; in 1825 appointed adj.gen. of the army, which post he held until his death.

JONES, Thomas ap Catesby, 1789–1858; of Welsh descent; b. Va.; entered the navy, 1805; was lieutenant in 1812; commodore in 1820; captain in 1829. From 1808 to 1812 he was in the gulf of Mexico, engaged in suppressing piracy, smuggling, and the slave trade. The British naval expedition against New Orleans having entered lake Borgne with 40 boats, he attempted with a small flotilla to intercept, but he was wounded and compelled to surrender. In 1842 he commanded the Pacific squadron, and having, from erroneous information as to war existing between the United States and Mexico, taken possession of Monterey, he was, for his indiscretion, temporarily suspended from service.

JONES, Thomas Rymer, b. 1810; educated for the medical profession at London and Paris; became a member of the college of surgeons in 1833, but on account of deafness relinquished his profession; appointed professor of comparative anatomy in King's college, London, in 1831; Fullerian professor of physiology in the royal institution of Great Britain in 1840. Subsequently he was examiner in comparative anatomy and physiology in the London university. In 1844 he was elected a fellow of the royal society. He is an able lecturer on natural history. His first work, *A General Outline of the Animal Kingdom,* is a work of great merit. He published also *The Aquarian Naturalist; The Animal Creation.* He contributed also valuable articles to the *Cyclopedia of Anatomy and Physiology.* He d. 1880.

JONES, William, of Nayland, 1726–1800; b. Northamptonshire, Eng.; educated at the Charter house and University college, Oxford; ordained priest, 1751; became successively curate of Finedon and Wadsohoe, vicar of Bethersden, rector of Pluckley, Paston, and Hollingbourn, and perpetual curate of Nayland. In 1780 he was elected fellow of the royal society of London. He adopted, while at Oxford, the philosophy of Hutchinson, and subsequently advocated it with great erudition and ingenuity. He was a man of vast learning, an able theologian, and a proficient in music. "He had," says bishop Horsley, "the talent of writing upon the deepest subjects for the plainest understanding." He wrote with vigor against the principles disseminated during the French revolution and illustrated by it. His most important works are *A Full Answer to Bishop Clayton's Essay on Spirit; Catholic Doctrine of the Trinity proved from Scripture; Course of Lectures on the Figurative Language of the Holy Scriptures; The Scholar armed against the Errors of the Times; Memoirs of the Life, Studies, and Writings of George Horne; Physiological Disquisitions; Art of Music.* He published also two political treatises against the French revolution, entitled *A Letter from Thomas Bull to his Brother John.* He wrote treatises on music and composed anthems. A complete collection of his works was published in 12 vols. in 1801.

JONES, Sir WILLIAM, was b. in London, Sept. 28, 1746, and was sent to Harrow in 1753, where he soon eclipsed all his fellows, particularly in classical knowledge. In 1764 he was entered at University college, Oxford, where he was enabled to gratify that desire for a knowledge of the oriental languages which had shown itself during the last two years of his residence at Harrow. In 1765 he left Oxford, to become tutor to the eldest son of earl Spencer, with whom he remained five years. In 1770 he published, at the request of the king of Denmark, a *Life of Nadir Shah*, translated into French from the Persian; in the following year, a *Persian Grammar*, republished some years ago, with corrections and additions, by the late prof. Lee; and in 1774 his *Commentaries on Asiatic Poetry*, republished by Eichhorn at Leipsic in 1776. In 1780 he completed a translation of seven Arabic poems, known as the *Moallákat*, which obtain their collective name from being "suspended" in the temple at Mecca; wrote an essay *On the Legal Mode of Suppressing Riots;* and another, entitled *Essay on the Law of Bailments*, and two or three odes. In Mar., 1783, Jones obtained a judgeship in the supreme court of judicature in Bengal, and landed at Calcutta in September. He at once set about the acquisition and promulgation of the knowledge of oriental languages, literature, and customs. He established the royal Asiatic society, "for investigating the history, antiquities, arts, sciences, and literature of Asia," of which he was the first president. To the volumes of the *Asiatic Researches*, sir William contributed largely. Besides these, he wrote and published a story in verse, called *The Enchanted Fruit, or the Hindu Wife;* and a translation of an ancient Indian drama, called *Sacontala, or the Fatal Ring*. A translation by him of the *Ordinances of Menu* (q.v.) appeared in 1794. He was busily employed on a digest of the Hindu and Mohammedan laws, when he was attacked with an inflammation of the liver, which terminated fatally on April 27, 1794. Jones was one of the first linguists and oriental scholars that this country has produced. The East India company erected a monument to his memory in St. Paul's cathedral, and a statue in Bengal. A complete edition of his works in 6 vols. 4to was published by lady Jones in 1799; and another appeared, in 13 vols. 8vo, in 1807, with a life of the author by lord Teignmouth.

JONESBORO, BATTLE OF, Aug. 31, 1864. While Sherman was besieging Atlanta, he sent a force under Howard to take the railroad near Jonesboro, 20 m. distant, with the view of compelling the evacuation of Atlanta. Hardée was dispatched by Hood, the rebel commander, to prevent the capture. An attack was made by Hardée on Howard's intrenchments, lasting two hours, when the rebels withdrew, with a loss as reported by Hood of 1400 killed and wounded, the union army suffering much less. Atlanta, as anticipated, was evacuated Sept. 1.

JONE'SIA, a genus of trees of the natural order *leguminosæ*, sub-order *cæsalpinieæ*, having a two-leaved calyx, a funnel-shaped, 4-fid corolla, seven stamens attached to a ring which springs from the tube of the corolla, a scimiter-shaped pod. The leaves are abruptly pinnate. The asoca of Sanskrit poetry (*J. asoca*) is one of the loveliest trees of the east. Its orange and crimson flowers grow in graceful racemes. Indian poetry abounds in its praises.

JONESVILLE, Va. See page 887.

JÖNKÖPING, a læn or province in Sweden, bounded n. by Mariested, lake Wetter, and Linköping, e. by Kalmar, s. by Wexio, w. by Halstad and Wenersberg; 4,275 sq.m.; pop. '72, 181,788. Much of it is rocky and mountainous; other parts are fertile and well cultivated, producing grain, potatoes, hemp, flax, and buckwheat. It abounds in minerals, especially iron, which is worked to a considerable extent. The exports are deals, pitch, tar, and potash, which the extensive woods furnish; also, cattle, butter, and cheese.

JÖN'KÖPING, a t. of Sweden, and one of the most beautiful and finely situated in the country, is capital of the læn of the same name, and stands at the southern extremity of lake Wetter, and is backed on the s. and w. by pine-clad hills. It is a maritime and trading town, and contains an arsenal and a factory for arms. Pop. '80, 16,147.

JON'QUIL (Fr. *jonquille*, from Lat. *juncus*, a rush), a name given to certain species of *Narcissus* (q.v.) with rush-like leaves. The COMMON JONQUIL (*N. jonquilla*), a native of the s. of Europe, is one of the most common bulbous-rooted plants in our flower-borders. It has from two to six yellow flowers at the summit of its scape (leafless stem). The SWEET-SCENTED JONQUIL (*N. odorus*), also a native of the s. of Europe, is another species very generally cultivated. Perfumed waters are made from jonquil flowers.

JONSON, BEN, or BENJAMIN, an English dramatist, was b., according to the most reliable accounts, at Westminster, though one authority says Warwickshire, in 1574. The Scottish poet Drummond of Hawthornden states that Jonson told him his grandfather was a Scotchman of Annandale, who settled in Carlisle, and his father a clergyman, who died before Ben was born. The latter received his education at Westminster school, where he had for his preceptor the illustrious Camden. Our knowledge of his career from this point until the period when he became famous as an author is very obscure. It is said that his mother took a second husband, a bricklayer (but this is doubtful), and that Ben was forced very unwillingly to assist his stepfather. The story of his residence (for a few months) at St. John's college, Cambridge, may be an authentic tradition, but it really rests on no better evidence than the present of some books now in the library of that college with his name inscribed on them. If he went thither at all

he was soon forced to return home for want of means; but his antipathy to the trade of a bricklayer was so great that he finally ran off, and served as a soldier in the Low Countries for some time. After coming back to England he tried the profession of an actor, but did not succeed, whereupon he started as a writer for the stage. Even in this capacity he did not rapidly acquire a reputation. The first piece that procured him a name was *Every Man in his Humor* (1598). The best of his subsequent productions are *Volpone, or the Fox* (1605), *The Silent Woman* (1609), and *The Alchemist* (1610). These are comedies full of rich, dry, carefully-elaborated "humor." He also composed two tragedies, *Sejanus* (1603) and *Catiline's Conspiracy* (1611), on which he—but only he—set a high value. His *Masques*, written for the courts of James and Charles, are occasionally very graceful. For many years Jonson was in receipt of a pension from these monarchs, but his careless and profuse habits involved him constantly in difficulties, and he died in poverty Aug. 6, 1637. Jonson's writings are not much relished now, and never were, even in his own day. There is an air of pedantry about his happiest efforts that spoils their effect. Yet, on the other hand, he possesses a rude force, and a humor which, if heavy and saturnine, is also geniune and pungent. Occasionally, too, his lyrics show a lightness and delicacy almost inexplicable, considering the ordinary and cumbrous movement of his faculties. The influence which he exercised over the wits of his time is a proof of the general strength and talent of the man. Shakespeare alone was reckoned his match in those wit-combats held at the Mermaid tavern. He was an immense drinker, and his potations do not seem to have improved either his temper or his constitution. The best edition of his works is that by Gifford, accompanied by a biographical memoir (Lond. 9 vols., 1816; new ed., with introd. and appendices by lieut.col. F. Cunningham, 1875, Bickers & Son).

JONSSON, Finn, a historian of Iceland, 1704–89; b. Hilardal; educated at the university of Copenhagen; was appointed bishop of Skalholt in 1754. Of his numerous works in Latin and Icelandic the most valuable is *Historia Ecclesiastica Islandiæ*, 4 vols.

JOODPOOR, or Marwar. See Joudpore, *ante*.

JOONAGHUR', a t. of India, province of Gujerat, on the peninsula of Kattywar, 235 m. n.w. of Bombay. It is advantageously situated on a ridge of sandstone, is surrounded by walls 5 m. in circumference, and has a citadel and a mosque. The town is ill built and dirty, and only about a half of the space within the walls is occupied. The trade is insignificant. Pop. variously estimated at from 5,000 to 30,000.

JOONPOOR', or Jaunpoor. See Jounpur, *ante*.

JOORIA, a populous and flourishing seaport of Hindustan, in the peninsula of Gujerat, belonging to the rajah of Annam. It is on the gulf of Cutch, and carries on considerable trade with several places in the gulf of Cutch, and on the western coasts of India, Persia, Arabia, and to some extent with Bombay. Its exports to the southward are cotton, oil, ghee, and hides, and in return spices, powder, lead, and cocoanuts are received. In 1808 the rajah and principal inhabitants agreed with the Bombay government to discourage piracy, and abstain from plundering those in distress.

JOPLIN, a city of Jasper co., Missouri; pop. 1880, 7,038. It has several churches, a high school, and several graded schools; a bank, a savings bank, 1 weekly newspaper, and numerous furnaces for smelting lead. It has extensive mines of lead and zinc. The Joplin railroad extends 36 m. n. to Girard, Kansas.

JOP'PA, the name given in the Greek of the New Testament to a t. called in Hebrew *Yafo;* modern, *Yafa* or *Jaffa*, i.e., beauty. It is situated on the sea-coast of Syria, about 33 m. n.w. of Jerusalem, and, according to Stanley, still deserves its name. Joppa is a place of great antiquity. Here, according to the classical myth, it was that Andromeda was chained to the rock, and exposed to the sea-monster; a story that has been supposed to shadow out, in an obscure way, the early intercourse between Greece and Syria. In sacred history it appears as the port of Jerusalem in the time of David and Solomon, and the place to which the cedars of Lebanon were floated from Tyre for the building of the temple. It was at Joppa that the apostle Peter saw the vision which corrected his Jewish prejudices concerning the Gentiles and the spirit of Christianity. In the reign of Constantine the great Joppa was made a bishop's see, but it attained its highest prosperity in the times of the crusades, when it became the principal landing-place of the warriors of Christendom. In 1799 it was stormed by the French under Bonaparte, and here was perpetrated his shameful massacre of Turkish prisoners. In 1832 Mohammed Ali made himself master of it; but the Turks, with the assistance of the British and Austrians, took it from him again in 1840. In 1874 the imports of Jaffa were valued at £113,871; the exports (chiefly soap, cereals, and oranges), at £207,515. Pop. about 12,000 (of whom 3,700 are Christians and 800 Jews).

JORDAENS, Jakob, a celebrated Dutch painter, was b. at Antwerp in 1594, and d. in 1678. His works are exceedingly numerous, and are to be found in most European collections. They are marked by great truthfulness and vigor of portraiture, and are richly but rather glaringly colored. Their chief defects are a want of taste and elegance in design. Among his best known works are the "Merry-making," the "Satyr and Man blowing Cold and Hot," "Pan and Syrinx," and "Saturn devouring his Children."

JORDAN, the principal river of Palestine, the bed of which forms a great valley, stretching from n. to s. in the eastern part of the country. The Jordan, deriving its head-waters partly from the eastern branches of the Lebanon mountains, and partly from Mt. Hermon, flows s., and after a course of 150 m., having passed through the small lake of El Huleh (the waters of Merom) and the lake of Tiberias (sea of Galilee), it falls into the northern extremity of the Dead sea (q.v.). The bed of the river varies much in breadth, and its banks are in some places flat; in others, steep. Where it enters the Dead sea it is 180 yards broad, and 3 ft. deep; but a little way further up it is only 80 yards broad, and 7 ft. deep. From the lake of Tiberias to the Dead sea the Jordan is crossed by no bridge, although in two or three places there are ruins of bridges. Above the lake of Tiberias is a bridge called Jacob's bridge, over which the road from Damascus to the sea-coast passes. In a number of places the Jordan is fordable; in some, even when the river is in flood. The course of the Jordan was explored by lieut. Molyneux, an English officer, in Aug., 1847, during the dry season; and by lieut. Lynch, with an expedition sent out by the United States government in April, 1848, when the river was in flood.

JORDAN (*ante*). Within a few miles of the foot of Mt. Hermon are three great fountains. One, the largest, issues from two openings in a bowl-shaped hill called Tell-el-kadi, the hill of the judge, near ancient Dan; one springs from crevices in the rocks and from among ruins that choke the mouth of a cave near Banias or Cæsarea Philippi; and one, the smallest and most remote, flows out near Hasbeiya. These are the main sources of the Jordan, which, uniting their waters, flow into and through lake Huleh. The valley of the Jordan is a part of that remarkable sunken chasm which stretches from the foot of the ridge known as the Anti-Lebanon nearly to the sea of Akabah. The sea of Tiberias, or lake of Galilee, through which the river runs, is 650 ft., and the Dead sea into which it empties is 1312 ft. below the level of the Mediterranean. Within this valley is a lower valley through which the Jordan runs in a course so tortuous that its length is about three times that of the valley. Except the herbage, shrubs or trees, and sometimes the jungle of cane, tamarisk, or willow along the river banks, most of the valley is a desert, and near the Dead sea is covered with a nitrous crust. Navigation is scarcely possible owing to rapids, the average descent between the sea of Tiberias and the Dead sea being 10 ft. to a mile; above the lake of Tiberias the fall is 300 ft. in 12 miles. The precipitous ridges which inclose the valley rise in some places on the w. to 3,000 ft., and on the e. to 5,000 ft. above the bed of the river.

JORDAN, Camille, 1771–1821; b. Lyons; took an active part in politics during the French revolution; opposed a republican government, and was prominent in the insurrection of Lyons. After the fall of that city, Oct. 9, 1793, he was proscribed by the Directory, and fled to Switzerland and London. Returning to Lyons in 1796 he was chosen in 1797 to the council of five hundred, where he advocated the principles of religious liberty, and after the revolution of Sept. 4 went to Germany. In 1800 he was recalled, and opposed the measures of Bonaparte, exposing the frauds in the election of 1802 in a pamphlet, *Vrai Sens du Vote National sur le Consulat à Vie.* During Bonaparte's administration he lived in retirement, devoted to literature, until the accession of Louis XVIII. He was elected in 1816 to the chamber of deputies. At first he sided with them, but disapproving of their measures opposed them. His political speeches and writings were published in 1818.

JORDAN, Charles Étienne, 1700–45; b. Berlin, of French parentage; studied at Magdeburg and Geneva; appointed minister of the French Reformed church of Potzlow in 1725. On the death of his wife he resigned in 1732, and traveled for some years in Holland and France; was with the Prussian crown-prince as his literary assistant in his exile, and appointed by him privy-councilor on his accession as Frederick II. His *Histoire d'un Voyage littéraire en France, Angleterre, et Hollande,* and his *Correspondance avec Frédéric II.*, are interesting.

JORDAN, Dorothy, or Dora, 1762–1816; b. near Waterford, Ireland; made her début as an actress in Dublin at the age of 16 under the name of Miss Francis, as Phebe in *As You Like It;* afterwards under the name of Mrs. Jordan she acted for three years at the York theater. In 1785 she appeared in London at Drury Lane; becoming very popular in comedy and musical farce. Her ten children by the duke of Clarence, afterwards William IV., are known by the name of Fitz-Clarence. The connection being suddenly broken off by the duke in 1811, she went to France, where in 1816 she died in obscurity and poverty. It is thought by many that she did not die at the time and place stated, but lived for seven years afterwards in England under a different name. A monument to her memory, by Chantrey, was erected by William IV. after his accession.

JORDAN, Rudolph, b. Berlin, 1810; studied painting in Berlin and Düsseldorf; resided for a long time in Heligoland. His pictures are much admired, especially those of fisher-life in Heligoland, among which the finest are *The Shipwreck* and *The Death of the Pilot.* His *Proposal of Marriage in Heligoland* has often been lithographed. An *Examination of Pilots,* and his pictures of life in the Dutch islands, are well known.

JORDAN, Wilhelm, b. Insterburg, Prussia, in 1819; graduated at the university of Königsberg in 1842, and in that year published his first volume of poetry. In 1848

he was a member of the Berlin national assembly, and was afterwards engaged in naval affairs. He wrote tragedies and comedies, and translated from Sophocles and Shakespeare. The poem by which he became distinguished is *Demiurgos ein Mysterium.*

JÖRG, Joseph Edmund, b. Immensbadt, Bavaria; studied the law at Munich; became connected with the bureau of archives in 1847; in 1852 was editor of the *Historisch-Politische Blätter;* in 1865 a member of the second Bavarian chamber. He is an ultramontane Roman Catholic. He published *Geschichte des grossen Bauern Kriegs; Geschichte des Protestantismus in seiner neuesten Entwickelung,* 2 vols.; *Geschichte der Social-Politischen Partien in Deutschland.*

JORGENSEN, Jorgen, a Danish adventurer, who, in the beginning of the present century, made a descent on the island of Iceland, and reigned there as protector for about six weeks, was the son of a watchmaker in Copenhagen, and was born in that city in 1779. On June 21, 1809, having previously visited the island in a ship in which he held the position of interpreter, Jorgensen arrived at Reikiavik in the *Margaret and Ann,* an armed merchantman from London, carrying 10 or 12 guns. A few days after he surrounded the house of the governor, took him prisoner, and informed the townspeople that he should hold Iceland in possession for England, "until such time as the English fleet should relieve him." He then issued several proclamations, announcing "that relations with Great Britain should be set on a firm footing, and Iceland be placed under her protection." He also organized a "government office," confiscating all Danish property, with whatever else he could lay hands on, *to the state chest,* and subjecting the inhabitants to all the miseries of an unscrupulous despotism. On Aug. 9, however, his brief reign was brought to a close by the arrival of a British man-of-war, the commander of which, hearing of the piratical invasion of Jorgensen, immediately seized upon and imprisoned him, restoring at the same time the previous condition of affairs. Jorgensen was carried to England, but he does not seem to have been visited by the punishment he so fully merited. He afterwards lived in London for some years, was convicted of robbery in 1820, and transported to Botany Bay in 1825.

JORIS, David, 1501–56; b. Delft, Holland; the leader of an Anabaptist sect known by the name of Jorists or Davidists. Early showing a fondness for the art of glass painting, he was apprenticed to a glass painter, and soon displayed great aptitude in the work. To perfect himself in the art he visited Belgium, France, and England. Returning to Holland he married, and in 1524 settled at Delft, practicing his profession; but in 1530 he began to display unusual religious zeal against Romanism, and, while a procession was passing in Delft, he stopped the priests, accused them of deceiving the people by false teachings, and reproached them for worshiping images and pictures. He was arrested, imprisoned, and tried, but by the aid of a friend escaped severe punishment. Abandoning the common principles of the reformation, he became an adherent of Anabaptist views. At first he did not identify himself with that sect on account of their disorderly conduct, and their doctrine of using the sword to establish their authority; but in 1534 he fully joined them by rebaptism. He was consecrated as bishop of Delft by Dammas, Ubbo, and others. He showed great zeal in behalf of the Anabaptists; his influence was very great and his followers numerous. The Anabaptist leaders, jealous of his success, openly disavowed him. But at the convocation of Anabaptists in 1536, Joris fearlessly declared himself a divinely appointed leader, and soon afterward issued a pamphlet calling all parties to a peaceful union. The leaders were still more provoked, and most of the Anabaptists forsook him. Those who adhered to him took the name of Jorists or Davidists. He professed to have visions and revelations, and interpreted the persecutions to which his followers were subjected as proofs of the divine favor. At Delft, Harlem, Amsterdam, Rotterdam, Leyden, and other cities, many suffered death for their adherence to him. His own mother died on the scaffold, a martyr to the doctrines which her son was propagating. Joris left Holland, and fled to the landgrave of Hesse, who refused him an asylum unless he came as a Lutheran. Suddenly in Basel, Switzerland, appeared in 1544 a man by the name of John of Bruges. He was a man of wealth, a communicant in the reformed church, and had come to reside there with his family. He was highly esteemed for his wealth and his virtues, and died peacefully with his family in 1556. This was David Joris. His son-in-law, Nicholas Blesdyck, a reformed preacher, but an avaricious and unprincipled man, after his death denounced him as guilty of the most blasphemous errors. The clergy and university declared his opinions heretical, and his body was dug up and burned. Joris was a man of excessively fervid imagination, and in religion a mystic, believing that he had divine visions, and making religion consist in the exclusion of all external objects from the thoughts, and the cultivation of silence, contemplation, and a peculiar, indescribable state of the soul. He rejected the doctrine of the Trinity, and held strange views concerning Christ. He believed that Joris was to establish internally and externally the eternal kingdom of Christ, which before was the kingdom of Christ only internally. He denied the doctrine of future judgment and the existence of angels. He held, like Manes, that the body only was defiled by sin. Of his 250 books and 1000 letters the most important is the *Book of Miracles,* under the title of *Wonderboeck.* A catalogue of his writings and a complete account of his life and work were published by prof. Nippolt of Heidelberg. See Davidists.

JORNAN'DES, or JORDANES, a historian of the 6th c., was by birth a Goth, or both of Alan and Gothic descent. He was first a notary, but afterwards adopted the Christian religion, and was made bishop of Croton, in Italy. He wrote two historical works in the Latin language; the first, *De Regnorum ac Temporum Successione*, is a short compendium of the most important events in history from the creation down to 552 A.D.; but the work is only valuable from the accounts in it of several barbarous northern nations. His other work, *De Getarum Origine et Rebus Gestis* (concerning the origin and deeds of the Goths), is a work which has obtained great renown, chiefly from its being our only source of information about the Goths and other barbarian tribes, except when they are casually mentioned by some Greek or Latin historian. The work is, however, full of inaccuracies, both of time, place, and person. There are many editions of both works.

JORTIN, JOHN, D.D., 1698–1770; b. London. His father was a French Protestant of Brittany, having come to England on the revocation of the edict of Nantes by Louis XIV. The son was educated at the Charter house and Jesus college, Cambridge, taking his first degree in 1719; soon became a fellow of the college, and graduated as M.A. in 1722. While at Cambridge he published a small volume of Latin poems entitled *Lusus Poetici*, which are regarded as worthy of a high place among modern Latin verses. He was presented with a living in Cambridgeshire, but after his marriage removed to London, where he became an admired preacher. His sermons at this time, many of which are printed, are distinguished for acuteness of thought and freshness of style. He was rector of Eastwell in Kent and St. Dunstans-in-the-east; became in 1762 the domestic chaplain of the bishop of London; was presented with the living of Kensington and a prebend in the church of St. Paul's. In 1764 he was made archdeacon of London. He resided at Kensington when he died. His most important works were: *Miscellaneous Observations upon Authors, Ancient and Modern; Remarks upon Ecclesiastical History*, 5 vols.; *Life of Erasmus; Truth of the Christian Religion; Sermons*, 4 vols.; *Tracts—Philological, Critical, and Miscellaneous.* He wrote also criticisms on Spenser, Milton, Tillotson, cardinal Pole, Seneca, and others. His works, theological and critical, display great learning and acuteness, and a peculiar terseness of language.

JORUL'LO, a volcanic mountain in the Mexican confederation, situated 150 m. w.s.w. of the city of Mexico, was thrown up, in Sept., 1759, to the height of 1375 ft. from a plain, which itself was 2,890 ft. above the level of the sea; lat. 19° 10′ n., long. 101° 2′ west. This new creation originally consisted of a series of cones of various sizes. Many of the subordinate eminences have since disappeared altogether; some have changed their form; and few now emit vapor. The temperature of the surface has gradually declined, and much of the locality has been covered with forest trees.

JOSEFFY, RAFAEL. See page 887.

JOSEPH, son of Jacob, B.C. 1745–1635 as is conjectured; b. Padan-Aram, Syria. As the favorite of his father he was envied by his brothers, who, angered by his dreams, which predicted his future supremacy, sold him into Egypt. His master, Potiphar, an officer of Pharaoh, made him steward of his house, but, on a false accusation of Potiphar's wife, threw him into prison. The keeper put the whole prison under his control. His interpretation of the dreams of two of Pharaoh's officers having been fulfilled, Pharaoh called upon him to interpret his own strange dream. He did so, predicting seven years of plenty and seven years of famine. Pharaoh gave him authority to do whatever he deemed needful for the safety of the people, and exalted him to be ruler over all the land, second only to the king. In the plentiful years he laid up food in storehouses, and in the years of famine sold it to the people, taking first their money, then their cattle. When these were exhausted they offered their bodies and their lands. So Joseph bought for Pharaoh all the land except that of the priests. He then gave them seed, requiring only that one-fifth of the increase should be paid to the king. The adjacent countries sent to Egypt for grain; the sons of Jacob came also. Joseph forgave their ill treatment of him, and not only supplied them with food, but sent for his father and all the households of his brothers, and gave them houses in the best of the land of Egypt. When dying he took an oath of the descendants of Jacob, saying, "God will surely visit you, and ye shall carry up my bones from hence," which they did about 144 years later, in the exodus under Moses. Joseph's character was one of great tenderness and moral firmness, with high executive capacity. His is one of the brightest names in history.

JOSEPH, the foster-father of Jesus; a descendant of David king of Israel. He was espoused to Mary, afterwards the mother of Jesus, and when he hesitated as to taking her in marriage, an angel appeared in a dream announcing that the child to be born of her was the Son of God. When Cæsar Augustus decreed that all the world should be taxed, he went with Mary to Bethlehem, where Jesus was born, and was present when the shepherds, sent by an angel, came thither to see the holy child. When Herod sought to destroy the child after the visit of the wise men from the east, Joseph was warned again in a dream by an angel to flee into Egypt with the young child and his mother, which he did. After the death of Herod the angel of the Lord again appeared to him in a dream in Egypt, directing their return to the land of Israel. Subsequently fearing danger to the child from Archelaus, his course was directed in a dream toward Nazareth of Galilee. He was by trade a carpenter.

JOSEPH I., Emperor of Germany, the eldest son of Leopold I., was b. at Vienna, July 26, 1678, was crowned king of Hungary in 1689, and king of Rome in 1690, became emperor in 1705, and died in 1711. The influence of the prince of Salm, who had the charge of his education, and his subsequent connection with prince Eugene, led him to embrace opinions much more liberal than those which have generally prevailed in his family, and he granted privileges to the Protestants of Hungary and Bohemia which had been refused by his predecessors. He also concluded a treaty in 1707 with Charles XII. of Sweden, by which he granted religious liberty to the Protestants of Silesia, and restored to them 120 churches which had been taken from them by the Jesuits. He was fond of courtly ceremonial, but mild and affable, and sought to improve the condition of the peasantry in his dominions by relieving them from some of the oppressions to which they were subject. He eagerly and successfully prosecuted, in alliance with Britain, the war of the Spanish succession against France.

JOSEPH II., Emperor of Germany, son of Francis I. and Maria Theresa (q.v.), was b. Mar. 13, 1741, at a time when his mother's fortunes were in their lowest state of depression. He early gave proof of excellent abilities. After the peace of Hubertsburg, he was elected king of Rome, and after the death of his father (Aug. 18, 1765) emperor of Germany. Maria Theresa also associated him with herself in the government of the Austrian states; but for some time his actual share in it amounted to little more than the chief command of the army. On her death in 1780 he inherited all her dignities and power. He was ambitious of increase of territory, and although he failed in his object of adding Bavaria to the Austrian dominions, which he thought to consolidate by obtaining it in exchange for the Low Countries, yet he was successful in acquiring Galicia, Lodomeria, and the county of Zips, at the first partition of Poland, in 1772; and he appropriated, in 1780, great part of the bishoprics of Passau and Salzburg. He was a zealous reformer, having imbibed, like Frederick the great, the principles of the philesophy which prevailed in that age, but he attempted his reforms too rashly, and too much by the exercise of mere authority, and was compelled to restore many things again to their former condition; the hostility of the nobles and clergy, whose power and privileges he sought to reduce, producing rebellions in various parts of his dominions. The clergy in particular regarded him with detestation. He had early shown a dislike to them, which caused no little vexation to his mother; and as soon as he found himself in full possession of the government of Austria, he proceeded to declare himself independent of the pope, and to prohibit the publication of any new papal bulls in his dominions without his *placet regium*. The continued publication of the bulls *Unigenitus* (q.v.) and *In cœnâ Domini* (q.v.) was also prohibited. Besides this he suppressed no fewer than 700 convents, reduced the number of the regular clergy from 63,000 to 27,000, prohibited papal dispensations as to marriage, and on Oct. 15, 1781, published the celebrated *Edict of Toleration*, by which he allowed the free exercise of their religion to the Protestants and not-united Greeks in his dominions. Pope Pius VI. thought to check this course by a personal interview with the emperor, and for that purpose made a visit to Vienna in 1782; and although he was quite unsuccessful in his object, he carried away with him the conviction, that the people were utterly unprepared for the reforms which their sovereign sought to accomplish, a conviction the correctness of which the event abundantly proved. Joseph II. engaged in a war with Turkey in 1788, in which he was unsuccessful; and the vexation caused by this, and by the revolts in his own dominions, and the necessity under which he felt himself of revoking many of the edicts by which he had sought to promote the welfare of his people, hastened his death, which took place on Feb. 20, 1790. He founded many valuable institutions, and did much to promote the progress of arts, manufactures, and commerce in Austria.

JOSEPH, King of Naples. See BONAPARTE, JOSEPH, *ante*.

JOSEPH, FATHER (François Leclerc du Tremblay), 1577–1638; the private secretary and confidant of cardinal Richelieu; was originally a soldier, but left the army and became a Capuchin friar. So great was his influence with the cardinal, and so well recognized his power, that he was known by the sobriquet of "his gray eminence," in contradistinction to the title of Richelieu. This fact has given rise to the choice of a subject by the celebrated painter Gérôme, whose work, "Son Eminence Gris," is well known to connoisseurs. The religious zeal of father Joseph actuated his entire official life; and conversion and the dissemination of the principles of the church, even though with fire and sword, were the objects most dear to him. In pursuance of these objects he sent missionaries to India, and even to England and Canada, while he sought earnestly to organize a crusade against the followers of Mohammed. A priest of ascetic habits, but of fiery enthusiasm, father Joseph was also a statesman of broad views and comprehensive knowledge, and one of the shrewdest and most able diplomatists of his time. So highly was he esteemed for this remarkable combination of valuable qualities—at a period when the church and politics were inextricably mingled in all civilized countries—that the pope was induced by Louis XIII., to promise him a cardinal's hat; but this honor was not actually conferred upon him, being prevented by his death. It is asserted that an important manuscript by father Joseph is deposited in the national library of Paris, supposed to be the history of the reign of Louis XIII.

JOSEPH OF ARIMATHEA, a rich and devout Israelite, a native of Arimathea, a city of Judea, thought to be Ramah of the Old Testament, and by many identified as the modern Ramlah. From the gospels we gather that he was a member of the Jewish grand council or Sanhedrim. Though not consenting to the judgment of his colleagues, he appeared either not to have had sufficient courage, or not to have found a hopeful occasion, to protest against their conspiracy for the death of Jesus. At any rate we know that through fear he did not openly profess himself a disciple of Christ. But, like the centurion, he was convinced by what he saw at the crucifixion that Jesus was the Son of God, and on the evening of that day, when the triumph of the priests and rulers seemed complete, he "went in boldly unto Pilate, and begged the body of Jesus." Having gained permission, he, with Nicodemus, embalmed and entombed it. There is a tradition, interesting but quite unsupported, that Joseph was one of the 70 disciples and preached the gospel in Great Britain.

JOSEPHINE, a co. of s.w. Oregon, bordering on California, bounded n. by the Rogue river; watered by the Rogue and Illinois rivers; 1400 sq.m.; pop.'80, 2,485. It is diversified by mountains, valleys, and forests, and has a soil partly fertile. Gold mines and copper ore are found. Co. seat, Kerby.

JOSEPHINE, MARIE ROSE, empress of the French, was b. June 23, 1763, in the island of Martinique, where her father, Tacher de la Pagerie, was capt. of the port at St. Pierre. She had only an indifferent colonial education; but her qualities of mind and heart, even more than her beauty, won universal regard. When about 15 years of age she came to France, and soon after married the viscount Alexandre Beauharnais; of which marriage were born Eugene, viceroy of Italy, and Hortense, queen of Holland, and mother of the emperor Napoleon III. Josephine's husband having been executed during the reign of terror, she herself just escaped through the events of 9th Thermidor (July 27, 1794). She was married, Mar. 9, 1796, to Napoleon Bonaparte, accompanied him in some of his campaigns, and exercised a great influence in restraining him from measures of violence and severity. At Malmaison, and afterwards at the Luxembourg and the Tuileries, she attracted round her the most brilliant society of France, and contributed not a little to the increase of her husband's power. She regarded his exaltation to the throne, however, with a presentiment of evil; and from the day of her becoming empress, seemed to dread that political motives might lead him to seek the dissolution of a marriage which had proved unfruitful. After scenes of the most painful kind this took place. The marriage was dissolved by law on Dec. 16, 1809. Josephine retained the title of empress, corresponded with Bonaparte, and if the allied sovereigns had permitted would have rejoined him after his fall. She lived near Evreux, and died, after a short illness, on May 29, 1814. Compare *Histoire de l'Impératrice Joséphine* (2 vols. Paris, 1859), by M. J. Aubenas.

JOSE'PHUS. FLAVIUS, a celebrated Jewish historian, was b. at Jerusalem, 37 A.D. He was of both royal and sacerdotal lineage, being descended, on the mother's side, from the line of Asmonean princes, while his father, Matthias, officiated as a priest in the first of the twenty-four courses. The careful education he received developed his brilliant faculties at an unusually early period, and his acquirements both in Hebrew and Greek literature—the two principal branches of his studies—soon drew public attention upon him. Having successively attended the lectures at the paramount religious schools of his time—"sects," as he inaccurately terms them—he withdrew into the desert, to a man whom he calls Banos, and who is conjectured to have been either a follower of John the Baptist or an Essene. Three years later he returned to Jerusalem, and henceforth belonged to the body of the "Pharisees," which, in fact, comprised the bulk of the people. So great was the regard for his abilities that at the age of only 26 years he was chosen delegate to Nero. When the Jews rose in their last and fatal insurrection against the Romans, Josephus was appointed governor of Galilee. Here he displayed the greatest valor and prudence; but the advance of the Roman general Vespasian (67 A.D.) made resistance hopeless. The city of Jotapata, into which Josephus had thrown himself, was taken after a desperate resistance of 47 days. Along with some others he concealed himself in a cavern, but his hiding-place was discovered, and being brought before Vespasian, he would have been sent to Nero, had he not—according to his own account, for Josephus is his own and his sole biographer—prophesied that his captor would yet become emperor of Rome. Nevertheless, he was kept in a sort of easy imprisonment for about three years. Josephus was present in the Roman army at the siege of Jerusalem by Titus; and after the fall of the city (70 A.D.), was instrumental in saving the lives of some of his relatives. After this he appears to have resided at Rome, and to have devoted himself to literary studies. The exact period of his death is not ascertained. All we know is that he survived Agrippa II., who died 97 A.D. He was thrice married, and had children by his second and third wives. His works are: *History of the Jewish War*, in 7 books, written both in Hebrew and Greek (the Hebrew version is no longer extant); *Jewish Antiquities*, in 20 books, containing the history of his countrymen from the earliest times down to the end of the reign of Nero (the fictitious Hebrew *Josippon*, which for a long time was identified with Josephus's *Antiquities*, dates from the 10th c. A.D.); a treatise on the *Antiquity of the Jews*, against Apion, in 2 vols., valuable chiefly for its extracts from old historical writers; and an

Autobiography (37–90 A.D.), in one book, which may be considered supplementary to the *Antiquities*. The other works attributed to him are not believed to be genuine.

The peculiar character of Josephus is not difficult to describe. He was, in the main, honest and veracious; he had a sincere liking for his countrymen, and rather more pride and enthusiasm in the old national history than he could well justify; but the hopelessness of attempting to withstand the enormous power of the Romans, and an aversion to martyrdom, caused him to side with the enemy—perhaps in the faint hope of being thus of some use to the national cause. The influence of Greek philosophy and learning is visible in all his writings, and, as far as biblical history is concerned, infused into it a tone of "rationalism." He speaks of Moses as a human rather than a divinely inspired law-giver; he doubts the miracle in the crossing of the Red sea; the swallowing of Jonah by the whale; and, generally speaking, whatever is calculated to teach that there was a special miraculous Providence at work on behalf of the chosen people. His style is easy and elegant, and Josephus has often been called the Greek Livy. The *editio princeps* of the Greek text appeared at Basel (Froben) in 1544. Since then the most important editions (with notes) are those of Hudson (Oxford, 1720), Havercamp (Amst. 1726), Oberthür (Leip. 1782–85), Richter (Leip. 1825–27), and Dindorf (Paris, 1845). Josephus has been frequently translated; the two best known versions in English are by L'Estrange (Lond. 1702) and Whiston (Lond. 1737).

JOSH BELL (now Bell), a co. of s.e. Kentucky, bordering on Tennessee and Virginia, watered by the Cumberland and the s. fork of the Kentucky rivers; 600 sq.m.; pop. '80, 6,055. The surface is mountainous, and mostly covered with forests. The staples are oats, maize, grass, and tobacco. It contains coal and iron ore. Co. seat, Pineville.

JOSH'UA (Heb. *Yehoshua*, "Jehovah helps"), the name of the celebrated Hebrew warrior under whose leadership the land of Canaan was conquered. He was the son of Nun, of the tribe of Ephraim, and was born in Egypt. Before the Israelites had reached Sinai he was chosen by Moses to command the troops that fought against Amalek; and shortly before the death of the great lawgiver, he was publicly invested by the latter with the whole civil and military government of the Israelites. The vigorous and, on the whole, successful manner in which he pursued the conquest of Canaan, and distributed the land among the tribes, is minutely described in the book which bears his name. He died at the age of 110, and was buried at Timnath-Serah, in Ephraim. The so-called book of Joshua, in its present form, containing an account of the conquest and division of the "Land of Promise," was neither written by him nor by any of his contemporaries; but the compiler has certainly made copious use, especially in the earlier chapters, of documents drawn up during the period of the conquest. Such passages as that relative to the harlot, Rahab—"and she dwelleth in Israel unto this day" (vi. 25)—demonstrate their own antiquity; but on the other hand, such passages as the narrative of the capture of Hebron (of which there are several), which did not take place till after the death of Joshua; the frequency of the expression "unto this day," in connections that forbid us to suppose the interval a brief one; the allusion to Judah and Israel as distinct (xi. 21); the lateness of many of the grammatical forms, etc., clearly indicate the gradual growth of the book under successive editors, the last of whom is placed by Masius, Spinoza, Hasse, etc., after the exile, and by Ewald in the time of Manasseh; while Keil and others place the book in the time of Saul. A Samaritan book of Joshua (*Chronicon Samaritanum*), containing a chronological narrative of events from the death of Moses down to the time of the Roman emperor Hadrian, compiled from Arabic and Hebrew sources, about 1300 A.D., is extant in Arabic, and was first edited at Leyden in 1848, by Juynboll, along with a Latin version. It differs very considerably from the canonical book of Joshua.

JOSHUA, BOOK OF (Joshua, *ante*), consists mainly of records made at the time of the events related, by a person or persons fully conversant with them, and under the direction of the great leader whose name the book bears. The accounts of the crossing over the river Jordan, of the memorial erected, of the battles, victories, punishments, treaties, are given with a definite fullness possible only for eye-witnesses, actors, and leaders in the scenes described. The division of the land by lot, and the grant of cities to the priests and Levites, by the people out of their inheritance, were made from written descriptions previously prepared and recorded in a book by surveyors expressly charged with the work. The covenant into which the people entered to serve the Lord was recorded by Joshua at the time it was made. These various accounts comprise the chief portions of the book. Besides these there are a few particulars, not affecting its integrity, that were added at a later day. These are: (1) a line added to the statement that Joshua saved Rahab with all her property and family, "and she dwelleth in Israel until this day;" (2) a sentence added to the description of Judah's lot, "as for the Jebusites—the inhabitants of Jerusalem—the children of Judah could not drive them out; but the Jebusites dwell with the children of Judah, at Jerusalem, unto this day;" (3) the accounts added at the close concerning Joshua's death and burial; the fidelity of Israel to their covenant all the days of the elders who outlived him, and had known the works of the Lord; and the death of Eleazar the priest. The land of Palestine has been examined by many persons with the book of Joshua in their hands. Among them may be mentioned Ritter,

Robinson, Stanley, and Thomson. Such men say that the book of Joshua bears the same relation to the conquest of Palestine that the Dooms-day Book of England bears to the Norman conquest. The book being received as genuine is a proof of the conquest of the land; the land being examined is a proof of the accuracy of the book. This book of Joshua is full of strange names, according to the divisions of the whole land, in the mountains, valleys, plains, springs, the wilderness, and the s. country; and when they whose ears have been trained to the work of listening for the ancient names go seeking for information from place to place, while the inhabitants hold their peace, or tell only absurd legends, it is scarcely a figure of speech to say that "the stones cry out" in attestation of the book.

JOSI'AH (Heb. *Yoshiyahu*, "Jehovah will help"), one of the kings of Judah, was the son of Amon and Jedidah, and succeeded his father (641 B.C.) at the age of 8 years. He was apparently brought up under the care of the priesthood, early manifested a pious disposition, and became a determined religious reformer, purging Judah and Jerusalem from idolatry. In like manner, it seems, he marched through the land of Israel. This statement has naturally excited much surprise. For more than a hundred years the kingdom of Israel had been a part of the Assyrian empire; its people were, for the most part, carried into exile and their place supplied by heathen colonists. It was in the reign of Josiah that Hilkiah the high priest found the "book of the Torah"—by which some understand Deuteronomy, others Exodus, and others, again, the whole Pentateuch—while the workmen were repairing the temple. Josiah does not appear to have heard of its existence before; at least, the words of it strike him as something novel, and excite the profoundest emotions in his breast. In commemoration of the discovery the king celebrated the feast of the passover with a splendor never before equaled. After this he continued his work of extirpating every trace of idolatry. Wizards, conjurers, "all the abominations" that could be "spied in the land," were "put away." In these efforts the monarch seems to have spent the greater part of his reign. He met his death at Megiddo, in the valley of Esdraelon, when attempting to check the advance of Pharaoh-Necho against the Assyrians. (Compare *Herod.* II. 159.) Josiah was the last of the good kings of Judah. In his days prophesied Jeremiah and Zephaniah.

JOSIKA, MIKLOS (NICHOLAS), Baron, a very remarkable Hungarian novelist, was born of a distinguished family, Sept. 28, 1796, at Torda, in Transylvania. In his youth he served for some time in the Austrian army, but resigned his commission in 1818, married a wealthy Hungarian heiress, and for many years devoted himself to agriculture and study. His first works appeared in 1834 under the title of *Irány and Vázlatok*, and were exceedingly popular. From that period till the revolution in 1848 he wrote about 60 volumes of novels, all of which were published at Pesth. The most important are *Az utolsó Bátóry* (The Last Bátóry, 3 vols. 1840); *Zrinyi a Költö* (The Poet Zrinyi, 4 vols. 1843); *A Csehek Magyarországban* (The Bohemians in Hungary, 4 vols. 1845); and *Jósika István* (Stephen Josika—one of the author's ancestors—5 vols. 1847). Involved in the Hungarian revolution, he was obliged to abandon his native country, and afterwards resided at Brussels, where he continued his literary labors. In 1864 he removed to Dresden, where he died in 1865. Among his productions written in exile are *Egy Magyar Családa forradalom Alatt* (A Hungarian Family during the Revolution); *The Mailly Family;* and *Ezter* (Esther). Josika is a thoroughly natural novelist, and drew his materials almost wholly from the history of his own land, of which he possessed a profound knowledge. He has been called the Walter Scott of Hungary.

JOSIPPON, BOOK OF, a celebrated Hebrew chronicle, supposed to have been written by Joseph-ben-Gorion. From A.D. 950 to our own time it was quoted as a genuine work of Josephus. But from late critical inquiry it is believed to be a production of the middle ages. The author was probably a Jew who lived about the 9th or 10th century. Steinschneider believes the author to have been a native of northern Italy, and considers the chronicle the "Hebrew edition of the Latin Hegesippus." The Jewish historian and critic Grätz holds that it is simply a translation of an Arabic book of Maccabees, entitled *History of the Maccabees of Joseph-ben-Gorion.* The chronicle consists of six books. Beginning with Adam it explains the genealogical table in Gen. xi., recounts the history of Rome, Babylon, Cyrus, the fall of Babylon; then resuming the history of the Jews, describes the times of Daniel, Zerubbabel, Esther, etc.; gives an account of Alexander the great and his successors; of the translation of the Old Testament into Greek; of the Maccabees, the Herodians, and the last war ending with the destruction of the temple by Titus. This work was first printed in Mantua in 1476, and other editions appeared afterwards in different places. It has been translated into Arabic, Latin, German, and English.

JOSQUIN, DES PRÉS, or DEPRÉS, 1450–1531; b. Hainaut, Belgium. He was a pupil of the celebrated Johann Ockenheim for several years in Paris. Many Italian writers claim him as a native of Italy, which may be accounted for by his having lived there, and because of the frequent addition to his name of *Pratensis* or *Del Prato*, from a town in Tuscany. He was a singer in the pontifical chapel of Sixtus IV. Leaving Italy he was appointed *Maître de Chapelle* to Louis XII., for whom he composed much music. The king having promised him a benefice, and having failed to grant it, Josquin wrote

a motet beginning *Memor esto verbi tui*, which having no effect, he wrote another, commencing *Portia mea non est in terrâ viventium*, when Louis bestowed the benefice, and Josquin composed a third, expressing his gratitude, beginning *Bonitatem fecisti cum servo tuo, Domine.* Josquin was a voluminous composer. Many of his works are in the British museum. "He may," says Dr. Burney, "be justly called the father of modern harmony, and the inventor of almost every ingenious contexture of its constituent parts." He was buried in the church of St. Gudule.

JOSS, Joss-stick, Joss-house. When the Portuguese Jesuit missionaries taught the Canton Chinese to pronounce the name of God (Deus or Deos), the word in Chinese mouths became "Joss," and the Chinese used this word to answer questions or give information concerning their deities, temples, and sticks of incense. Hence the strange term for deity in "pidgin" Chinese.

JOSSELYN, John, b. Kent, Eng.; sailed for America and reached Boston in 1638; came again in 1663, returning to England in 1671. In 1672 he published in London *New England's Rarities Discovered*; in 1674, *An Account of two Voyages to New England; Chronological Observations of America from the Year of the World to the Year of Christ.*

JOST, Isaak Markus, an eminent Jewish scholar of Germany, b. at Bernburg in 1793, d. 1862. His principal works are *Geschichte der Israeliten* (History of the Israelites, 9 vols., Berl. 1820–29, to which was added a tenth during 1846–49, entitled *Neuere Geschichte der Israeliten von* 1815–45); *Allgemeine Geschichte des Jüd. Volkes* (Universal History of the Jewish People, 2 vols., Berl. 1831–32); a Translation (into German) of the Mishna, with text and commentary (6 vols. Berl. 1832–34); *Gesch. des Judenthums*, etc. (3 vols., Leipsic, 1857–59). He also edited a journal entitled *Israelitische Annalen* (Fkf. 1839–41). Besides being a savant he was a patriot, and warmly interested himself in behalf of the social and political liberties of his countrymen.

JO'TUNS, or Jætten, divinities in the Scandinavian mythology, which personified various elements in the principle of evil. Their stature and strength were gigantic, but their intelligence was inferior to that of human beings, by whom in conflict they were invariably defeated. Such intelligence as they possessed was supposed to be the expression of their extreme malignity, which made them inimical to humanity, and equally so to the gods of the Valhalla. They appeared, in fact, as mythical exponents of the malign forces of nature, between which and human authority there must ever be active war.

JOUBERT, Barthélemy-Catherine, 1769–99; b. France; educated for the bar, but entered the army, and was second in command to Napoleon in the war in Italy. He commanded the French army in Holland, but resigned in 1799 and went to Paris, where he married Mlle. de Montholon. He was reappointed to command, and replaced Moreau in Italy, where he gained slight advantages against the combined Russian and Austrian forces, but was defeated by Suwarrow at Novi, where he fell mortally wounded. So highly was he regarded by the French directory that it was generally believed that he would have been given the supreme command in place of Napoleon, had he lived.

JOUDPORE, or Jodhpore, a city in Rajpootana, Hindustan, capital of a protected state of the same name; lat. 26° 19′ n., long. 73° 8′ east. The population, not accurately ascertained, appears to amount to about 80,000. Besides several magnificent tanks, the place is remarkable for its elaborately constructed and deep wells.—The *state* of Joudpore, or Marwar, is the most extensive and populous of all the principalities of Rajpootana. Area, 35,672 sq.m.; pop. 1,783,600; army, 11,000; revenue of the rajah, £180,000. Joudpore is chiefly within the basin of the Luni; and its central parts, being level and well watered, are highly productive, yielding wheat, opium, tobacco, and cotton.

JOUFFROY D'ARBANS, Claude François Dorothée, Marquis de, 1751–1832; b. Paris; disputed with Fulton the honor of first having applied steam to navigation. Witnessing the operation of a fire-engine, he believed that steam could be used for vessels on water. He made his first attempt with a small propeller on the Doubs in 1776, but the experiment was a failure. In 1783 he made another experiment on the Saone, with more success; but for want of pecuniary means and support, he failed to prosecute it. The government refusing him a patent, he went to England. Returning to France he became acquainted with Fulton, who admitted the merit of the experiments. He received permission in 1816 to form a company, and put his first steamer, called *Charles Philippe*, on the Seine; but the attempt was unsuccessful. He withdrew to the Hôtel des Invalides, and died there of cholera. His claim was acknowledged by Arago, and in 1840 by the French academy. Jouffroy published *Les Báteaux-a-Vapeur*, and wrote for the academy *Memoires sur les Pompes à Feu.*

JOUFFROY, Theodore Simon, a French philosopher, was b. July 7, 1796, at Pontets, a village of the Jura, early devoted himself to the study of philosophy, and became a teacher of it, and in 1832 a professor in the collége de France. His bad health compelled him to resign his professorship in 1837, and he died Mar. 1, 1842. His works consist chiefly of studies of the Scottish philosophy, and he published translations of the works of Reid and some of those of Dugald Stewart with notes and introductions.

Of his original works, the most valuable is *Mélanges Philosophiques* (1833). He was also known as a political writer, and in 1824 took part in establishing the newspaper *Le Globe*. He was for some time a member of the chamber of deputies, and was a follower of Guizot.

JOUGS, JUGGS, or JOGGS, the name given in Scotland to a form of pillory which was used also in Holland, and probably in other countries. The jougs were nothing more than an iron ring or collar, fastened by a chain of two or three links to a pillar or wall in some public place, such as a market cross, a market tron or weighing-post, a prison door, a church door, a churchyard gate, a churchyard tree, a tree beneath whose branches courts were held, and the like. The ring or collar opened by a hinge or joint, so as to inclose the culprit's neck, when it was secured by a loop or staple, and a padlock. The jougs were employed as a punishment as well for ecclesiastical as for civil offenses. They may be traced as far back as the 16th c., and although they have not been in use for the last hundred years, they may still be found hanging at a few country churches. The jougs obviously take their name from a widely-spread root, which appears in the Sans. *yuj*, the Gr. *zugon*, the Lat. *jugum*, the Ital. *giogo*, the Fr. *joug*, the Ger. *joch*, the Ang.-Sax. *iocc*, and the Eng. *yoke*. The branks (q.v.) were occasionally hung on the same pillar with the jougs.

JOULE, JAMES P., F.R.S., LL.D., one of the most distinguished living experimental philosophers, was b. in 1818, at Salford. In his youth he had the good fortune to have for instructor in science the celebrated Dalton; and he early showed, by constructing for himself electrical machines and other philosophical instruments, the bent of his genius. His earliest notable experiments were made with reference to electro-magnetic engines; from which he passed to quantitative determinations regarding heat, and the transformation of various forms of energy (see FORCE). He is justly entitled to be considered as the experimental founder of the modern theory of conservation of energy—the grandest generalization ever made in physical science. He published (1878) *The Discovery of the Mechanical Equivalent of Heat*, which marked a new era in physical science.

JOUNPUR', a t. in the n.w. provinces of India, is situated on both banks of the Gumti, which is here crossed by an ancient bridge, so strong as to be periodically submerged without injury. Lat. 25° 44′ n., long. 82° 44′ east. This structure is commanded by a fort still older than itself, a work of the latter half of the 14th century. The pop. is, '72, 25,531. Jounpur is the capital of a district of the same name, with an area of 1555 sq.m., and, '72, 1,025,869 inhabitants. Sugar is largely produced.

JOURDAN, ANTOINE JACQUES LOUIS, 1798–1848; b. Paris; was a surgeon in the army and in military hospitals, and took the degree of M.D. in Paris in 1819. He published *Traité complet des Maladies Vénériennes*, 2 vols.; *Pharmacopée Universelle*, 2 vols.; *Dictionnaire Raisonné, Etymologique, Synonymiqué, et Polyglotte des Termes usités dans les Sciences*, 2 vols. His translations from German, Italian, Latin, and English medical works are numerous.

JOURDAN, JEAN BAPTISTE, Comte, a French marshal; b. April 29, 1762, at Limoges, where his father was a surgeon. He early entered the army, embraced with great zeal the cause of the revolution, and soon rose to the rank of a general of division. In Sept., 1793, he obtained the command of the army of the north, and Oct. 16 gained an important victory at Wattignies. In 1794 and 1795 he commanded the army of the Meuse and Sambre, and prosecuted the war with great vigor and success. In 1796 he pushed his way far into Germany, but was driven back by the archduke Charles; and this discomfiture led to his resignation of his command. In 1799 the directory intrusted him with the command of the army of the Danube; but he was defeated by the archduke Charles at Stockach. Although he opposed the *coup-d'état* of 18th Brumaire, the first consul employed him, in 1800, in the reorganization and administration of Piedmont; and on the establishment of the empire, in 1804, he was made a marshal and a member of the council of state. He accompanied king Joseph to Naples, and afterwards to Spain, and in his service he was actively employed as a general. He offered his services to Napoleon after his return from Elba. Louis XVIII. made him a count in 1815. In 1819 he was made a peer of France; but his republican principles led him to enter heartily into the revolution of 1830. He lived and died poor. His death took place Nov. 23, 1833.

JOURDAN, MATHIEU JOUVE, called *coupe-tête*, 1749–94; killed the governor of the Bastile at the time of its capture, and murdered the two body-guards of the royal family during their removal from Versailles to Paris, Oct. 6, 1789. He was also charged with having been the promoter and leader of a massacre at Avignon; and altogether his bloody deeds, and the fact that he boasted of them, being considered a disgrace to the revolution, he was condemned by the committee of public safety, and suffered death by the guillotine.

JOURNALISM. See NEWSPAPER, *ante;* AMERICAN JOURNALISM.

JOURNALISM, COMIC AND SATIRICAL, devoted to satire, humor, and the art of caricature, may be said to have established itself in the public favor first with the foundation of London *Punch* in 1841, and which was followed at intervals, in England, France, Germany, Italy, and the United States, by a great number of imitators, very

few of which gained a permanent position. Among English satirical papers have been *Judy, Fun,* the *Owl,* the *Hornet,* the *Tomahawk,* and *Vanity Fair;* Germany, *Fliegende Blätter* and *Kladderadatsch.* In France have been the *Charivari, Petit Journal pour Rire, La Vie Parisienne,* and the *Journal Amusant.* American satirical and humorous papers—*Yankee Notions, Nick Nax, Pick,* the *Picayune,* the *Lantern, Young America, Vanity Fair, Momus, Mrs. Grundy, Punchinello, Yankee Doodle, Budget of Fun* (all in New York); the *Wasp* (in San Francisco); *Die Vehme* and *Puck* (Germ., St. Louis); *American Punch* (Boston, Mass.); *Puck* (Eng. and Germ.), *Chic, Life* (New York).

JOURNALISM, Illustrated, that system of newspaper-making whose leading feature is the pictorial representation of events and incidents, and the illustration of scenes, objects, and places, by engravings, lithographs, or photographs. The first illustrated journal approaching the character of those of the present day was the *Penny Magazine,* published in England by the society for the diffusion of useful knowledge, in 1833, and which reached a large circulation. In 1841 *Punch* was started, and the following year Messrs. Ingram & Cook founded the *Illustrated London News,* which was followed in 1843 by *L'Illustration,* published in Paris, and the *Illustrirte Zeitung* in Leipsic. The American illustrated press began with the *Illustrated American News,* New York, 1851; which was followed by the *Illustrated News,* New York, 1853. In 1855 the *Illustrated Times* was started in London, and in the same year Frank Leslie founded his *Illustrated Newspaper* in New York, which was soon followed by a number of similar publications whose line has continued with varying fortunes ever since. *Harper's Weekly* began publication in 1857; *Le Monde Illustré,* in Paris, in the same year; *La Ilustracion Española y Americana,* Madrid, 1856; *Illustrated News of the World,* Paris, 1858; *Ueber Land und Meer,* Stuttgart, the same year; and from that period to 1880 illustrated journals in Copenhagen, Montreal, Birmingham, Vienna, Milan, Melbourne, and other cities in Europe and America. The first successful illustrated newspaper published in America was the *Illustrated News,* issued in 1853 by P. T. Barnum and Messrs. Beach Bros. The art department of this paper was in charge of Frank Leslie, who applied many novel and ingenious devices to the saving of time and increasing the facility with which the work of printing illustrations was accomplished. These included, among other improvements, the use of the cylinder press with inking-table attachment; and the method of bolting blocks of wood together after engraving, thus enabling the distribution of full-page or double-page work among a number of engravers as soon as the drawing had been put on the block. The great progress in illustrated journalism which has occurred in the last ten years has been due to increased excellence in art work, and in the application of chromo-lithography. The establishment of the New York *Daily Graphic* and its successful publication since 1873 gave encouraging evidence of the possibility of applying the principle of illustrated journalism to the necessities of a daily newspaper. This was accomplished by means of a process in art which has been kept a secret from the general public, though the method is simply a particular form of lithography susceptible of execution more rapid than the ordinary. Illustrated journalism in America has issued chiefly from New York.

JOUSTS, exercises of arms and horsemanship, performed in the middle ages by knights and nobles. In the joust the combatants engaged one another singly, each against his antagonist, and not in a troop, as in the tournament (q.v.). The number of courses to be run and strokes to be given was generally three, but sometimes a larger number. The weapon most in use in the joust was the lance, but sometimes the battle-axe and sword were employed. To direct the lance anywhere but at the body of the antagonist was reckoned foul-play. In the joust of peace, or *joute de plaisance,* a foot encounter preceded the mounted combat. In the 15th c. the usages of jousting had come to differ in different countries to such an extent that an elaborate treatise was written in explanation of the various modes distinguishing the characteristic differences.

JOUTEL, Henri, b. Rouen in 1651; a French explorer; was in the army when young, and joined La Salle's exploring expedition to the mouth of the Mississippi in 1684. He was placed in command of the fort in Texas, and also in St. Louis, and was with La Salle in his last expedition, in 1687, when he was assassinated. With La Salle's brother, nephew, and three others he went to Canada, thence to France in 1688. His *Journal Historique du Dernier Voyage que feu M. de la Salle fit dans le Golfe de Mexique* was published in 1713.

JOUY, Victor Joseph Etienne de, 1764–1846; b. Jouy, near Versailles; at the age of thirteen accompanied the governor of French Guiana as sous-lieut. to that colony; returning to Versailles studied two years, and went to the French East Indian possessions as an officer in the Luxembourg regiment. Returning to France he joined the revolutionary party, and was rapidly promoted; but during the reign of terror, being suspected, fled to Switzerland. After the fall of Robespierre in July, 1794, he returned and was placed on the staff of the army of Paris, under gen. Menou. Soon afterwards he was arrested, then released and sent as commander to Lille; again arrested on a charge of holding communication with the English minister, but acquitted and restored to his functions. He abandoned the army at the age of thirty, in disgust, and devoted himself to literature. His first efforts were some vaudevilles with Delonchamp and Dieulafoy. But his first work that met with great success was the opera *La Vestale,* set

to music by Spontini. This was very popular, and gained him admission to the academy in 1815. This was followed by the operas *Les Amazons,* with music by Mehul, and *Les Abencerrages*, with music by Cherubini, which are still performed. He wrote comedies in prose and verse, which were successful, and also tragedies, of which *Sylla* was very popular. His greatest work was *L'Hermite de la Chaussée d'Antin,* a series of essays originally published in the *Gazette de France,* and afterwards issued in 5 vols. They were much admired in France, regarded as equal to the English *Spectators, Guardians,* and *Ramblers,* and translated into English. These were followed by *France Parleur; L'Hermite de la Guyane; L'Hermite en Province.* Under the restoration he engaged in politics, and for his attacks on the government was imprisoned. In prison he and M. Jay wrote *Les Hermites en Prison,* and *Les Hermites en Liberté,* which were much applauded by the liberal party in France. Jouy wrote also on political economy, and two novels, *Cecil* and *Le Centenaire.* He edited for a time the *Journal des Arts,* and contributed many articles to newspapers and journals. After the revolution of 1830 Louis Philippe appointed him librarian at the Louvre.

JOVE. See JUPITER, *ante.*

JOVELLA'NOS, GASPAR MELCHIOR DE, 1744–1811; b. Gijou, Asturia, of an ancient and noble Spanish family; studied at the universities of Oviedo, Avila, and Alcala; was appointed immediately on leaving college, in 1769, judge of the criminal court of Seville; was made in 1778 chief judge of the king's court at Madrid. Here he became acquainted with Campomanes and other prominent literati of Spain, and was a member of several scientific societies. He formed the acquaintance also of Cabanus, a French adventurer, who, through court intrigue, was thrown into prison, and Jovellanos was banished under the pretext of exploring the natural resources of the Asturias. He improved his retirement in forming plans for developing the internal resources of the country, and founded the *Instituto Asturiano* for improving agriculture, working the mines, and promoting social and educational reform in Asturia. To this he devoted a large part of his official income. Cabanus being restored to the favor of Godoy, the prime minister, Jovellanos was recalled and made home-secretary of state under Godoy, who, however, soon again expelled him. Returning to Gijou he gave himself to the interests of the *Instituto Asturiano.* But in about two and a half years he was again arrested, and sent, in 1801, a prisoner to the island of Majorca, where he was kept closely for seven years, first in a Carthusian convent, afterwards in the castle of Belver. He spent his time here in study, commenced a *Flora Belverica,* and collected materials for a history of the island. On the French invasion he was recalled, and when Joseph Bonaparte became king he was offered the portfolio of the interior. Declining it he joined the patriotic party, was chosen a member of the central junta, and helped to reorganize the cortes. On the dissolution of the junta Jovellanos retired to Gijou, whence, on the occupation of the town by the French, he escaped to Vega. Feared and hated by his enemies on account of his great influence, he perished by assassination. Jovellanos was the author of numerous compositions in prose and verse. Of the latter the most prominent are the tragedy of *El Pelago; Pau y Toros;* the comedy of *El Delincuente homado;* a translation of the first book of *Paradise Lost;* and a collection of miscellaneous pieces. But he was distinguished chiefly as a political economist and legislator. He was a deep thinker and a brilliant rhetorician. As a writer of Spanish prose it is said that he has no equal in modern times. His *Elogios* on the eminent architect Ventura Rodrigues, and on the king Charles III., are beautiful compositions, but his greatest work, showing his political foresight and legislative sagacity, was his *Informe Sobre un Projecto de Ley Agraria.*

JOVIA'NUS, FLA'VIUS CLAU'DIUS, b. A.D. 331; the son of Veronianus, a distinguished gen. under Constantius; of a noble Mœsian family. He was capt. of the life-guards of the emperor Julian, attending him in his disastrous campaign against the Persians. Julian having fallen in battle, Jovian was proclaimed, A.D. 363. by the army, his successor. His first task was to save his army, harassed by the Persians, and suffering greatly for want of provisions. He reached the Tigris in safety, but found it impossible to cross, exposed to attack from the Persian force. Sapor proposed terms of peace, to which, though ignominious, Jovian was compelled to yield. The terms were that the Romans should surrender their conquests w. of the Tigris, together with the fortress of Nisibis, and many other strongholds in Mesopotamia, and should bind themselves not to aid the Armenians, with whom the Persians were then at war. His troops being in great distress he submitted to the harsh terms, and marched westward towards his kingdom. He surrendered Nisibis to the Persians, the inhabitants removing to Amida, which became the chief Roman town in Mesopotamia. On his arrival at Antioch he proclaimed himself a Christian; and rescinded the edicts of Julian against the Christians, but granting protection to such as remained pagans. He upheld the Nicene, or orthodox creed, against the Arians, and restored the bishops who had suffered at their hands. Athanasius, who visited him at Antioch, he reinstated in the see of Alexandria, from which he had been driven by the Arians. Acknowledged by the various provinces, he set out from Antioch for Constantinople, stopping at Tarsus to pay funeral honors to Julian's remains. Continuing his journey in unusually severe cold, of which several of his attendants died, he reached Ancyra, where he assumed consular dignity; and a

few days after came to Dadastana in Galatia. The next morning, Feb. 17, 364 A.D., he was found dead in his bed. Some attribute his death to suffocation from the fumes of a charcoal fire in his room, some to the exhalations from the plaster with which it had been newly laid, others, with more probability, to the dagger or poison of an assassin. He was 33 years of age and had reigned 7 months. Valentinian was proclaimed emperor by the army.

JOVINIAN, an Italian of the 4th c.; one of the opponents of monachism, which was strenuously advocated by the early fathers. But while opposing those who practiced celibacy and the maceration of the body by fasting, he himself remained single and lived like other monks, though even his enemies admit that his life was blameless. He held also that Mary, after the birth of Jesus, ceased to be a virgin, that the blessedness of heaven does not depend on the merit of good works, that a Christian cannot sin willfully, but will resist and overcome the devil. He advocated his opinions first at Milan, but Ambrose forbidding their propagation, he went to Rome. He and those who followed him were condemned and excommunicated in a council held at Milan in 390, as the authors of a "new heresy and of blasphemy," and forever excluded from the church. Pope Syricus confirmed the sentence, and the emperor Honorius enacted laws against the Jovinians. Their leader was banished to the lonely island of Boa, off the coast of Illyria, where he died before 406. But his opinions spread everywhere, and it was said that several nuns in Rome married. Augustine came forth in defense of the orthodox principles and practices of the ascetics, endeavoring by sophistry to reconcile them with reason and Scripture. Jerome followed in the same defense. But notwithstanding the attacks of the three great doctors, Ambrose, Augustine, and Jerome, the heresy, as it was called, spread, and was accepted in different parts of Christendom. Neander ranks the services of Jovinian next to those of Luther.

JOVIUS, PAULUS (or GIOVIO), 1483–1552; b. at Como, of a noble family; a distinguished historical and biographical Italian writer. His name is properly Paolo Giovio, but he is better known by the Latinized form. He studied in the universities of Padua and Pavia for the medical profession, which he soon abandoned for literature. He applied himself to the Latin classics for the purpose of forming a good style. Soon after the election of Leo X. he went to Rome, was introduced to the pope, who, on reading some of Giovio's compositions, declared that, "after Titus Livius there was no writer more elegant or more eloquent," and thenceforth was his patron. He accompanied cardinal Giulio de Medici on important missions to different countries, and when his patron became pope Clement VII. he bestowed on him the bishopric of Nocera. Remaining in the capital he intrusted the charge of his see to his deputy. Giovio was present at the famous conference of Bologna in 1530 between the emperor Charles V. and the pope, when the emperor gave him the details of his expedition against the Algerine pirates, for the history which he was then writing. Paul III. did not regard Giovio with favor. That pope was zealous concerning church discipline, while Giovio was latitudinarian, if not an infidel or atheist, and the satirical poets accused him of all kinds of licentiousness. Withdrawing from the papal court he retired to his native Como, built a delightful villa, which he fancied to be like one of Pliny's villas, collected a museum, and made a picture-gallery of the distinguished men of his own and other ages. But the quiet of country life was irksome, and he visited the various courts of Italy, where his humorous conversation and genial *bonhomie* made him a welcome guest. In one of his visits to Florence he was seized with a violent attack of the gout, of which he died. He was buried in the church of St. Lorenzo, where a statue was raised to his memory. He died rich. His principal works were: *Historia sui Temporis*, 2 vols.; *Illustrium vivorum vitæ; Libellus de Piscibus Romanis; Commentario delle Cose dei Turchi; Dialogo delle Impresse; Lettere Volgare*. The last is a collection of his letters published after his death, written in a style of jovial humor, and containing much literary and historical information concerning that age. Most of his historical works are untrustworthy, as he was disposed to favor his friends and patrons, and was too careless or indolent to verify his statements.

JOWETT, BENJAMIN, b. Camberwell, 1817; educated at St. Paul's school; elected to a scholarship at Balliol college, Oxford, in 1835, and to a fellowship in 1838; was tutor in 1842, and ordained the same year; in 1853 was a member of the commission to consider the mode of admission by examination to the civil service, of which Macaulay was chairman; elected regius professor of Greek in the university in 1855; in 1870 was elected master of Balliol college. He published a *Commentary on the Epistles of Paul to the Thessalonians, Galatians, and Romans*, and contributed to the *Essays and Reviews* an article "On the Inspiration of the Scriptures," which being considered heretical, he was tried but acquitted. His chief work is *The Dialogues of Plato translated into English, with Analyses and Introductions*, 4 vols. He received the honorary degree of D.D. from the university of Leyden in 1875.

JOWF, or D'JOWF, a province of Arabia, a dependency of Jebel Shomer, between 29° and 30° n. lat., and 39° and 41° e. long.; 700 sq.m.; pop. 40,000. It is an oasis, well watered, fertile, and has a temperate climate. The date-palm is largely cultivated, but the peach, apricot, fig, and grape grow in abundance, and are of superior flavor. Various cereals and leguminous plants also are grown. The gardens of the Jowf are

noted in that part of the e. for their fertility and beauty. They are irrigated by running streams. The inhabitants are of a superior class. The principal towns are Jowf and Sekakah.

JOY, CHARLES A., PH.D., b. N. Y., 1823; was educated at Union college; graduated at Harvard law school. Later he attended the universities of Berlin and Göttingen, receiving his degree at the latter institution. In 1853 he was in Paris attending lectures at the Sorbonne, but returned to the United States the same year to accept the chair of chemistry in Union college. In 1857 he became professor of chemistry in Columbia college, New York, and remained there until 1879. He was editor of the *Scientific American*, and of the *Journal of Applied Chemistry;* contributed largely to Appletons' *New American Cyclopædia;* and prepared articles on scientific subjects for many of the periodicals of the day.

JOY, JAMES F., b. N. H., 1810; educated at Dartmouth college, and settled in Detroit, Mich., 1836, where he practiced law. He became interested in railroad enterprises, and was prominent in the organization of the Chicago, Burlington and Quincy railroad, which was effected under that title in 1856. In 1866 he was president of the Michigan Central railroad, and held that position until as late as 1871. The St. Mary's Falls ship-canal was constructed by a company which he organized.

JUAB, a co. of central Utah; 900 sq.m.; pop. '80, 3,473. Much of it is mountainous, Mt. Nebo, the loftiest peak, being 12,000 ft. high. The staple is maize. But a small part is adapted to agriculture. Co. seat, Nephi.

JUAN, DON. See DON JUAN.

JUAN', DON, D'AUSTRIA. See JOHN OF AUSTRIA, *ante.*

JU'AN FERNAN'DEZ, called also MAS-A-TIERRA, a rocky island in the Pacific ocean, about 400 m. off Valparaiso, on the coast of Chili, to which it belongs. Lat. 33° 40′ s., long. about 79° west. It is 18 m. long, 6 m. broad, and is for the most part covered with high rocky peaks, the highest of which, Yungu, is about 4,000 ft. above sea-level. There are also numerous and fertile valleys, which yield oats, turnips, apples, strawberries, melons, peaches, figs, grapes, sandal-wood, and other varieties of timber. Numbers of wild goats wander on the cliffs. In 1872 there were only about a dozen Chilians living on the island; and they were dependent on Valparaiso for a supply of most of the necessaries of life. Here Alexander Selkirk, a buccaneer, whose native place was the Scotch fishing-village of Largo, lived in solitude for four years (1704–8). His story is supposed to have suggested the *Robinson Crusoe* of Defoe.

JUAN' Y SANTACI'LIA, JORGE, 1713–73; b. Orihuela, Valencia; was sent in 1733 on a small vessel to explore the coast of America. In 1735 he was appointed vice-admiral by Philip V., and accompanied Ulloa's expedition to South America for the purpose of measuring a degree of the meridian at the equator. The expedition was assisted by La Condamine and Bouguer of the French acadamy. Ulloa and Juan remained in Peru several years, and the results of their observations were published in 5 folio volumes. Juan wrote the scientific account of the expedition, and he and Ulloa together published a treatise on the Spanish-Portuguese meridian boundary line. Juan was an able officer of the Spanish navy, and also wrote works on nautical science.

JUAREZ, BENITO, late president of the Mexican republic, was b. at Ixtlan, of Indian parents, about the year 1807. Notwithstanding disadvantages of birth, he succeeded in establishing a reputation as an advocate, became governor of his native state, Oaxaca (1848–52), and an active member of the liberal party. Exiled during the dictatorship of Santa Anna, he returned when the republic was restored, was elected to the new congress (1856), and appointed president of the supreme court in 1857, and consequently, in case of vacancy by death or default, president *ad interim* of the republic.

On the overthrow of the liberal president, Comonfort, by Zuloaga and the clerical party (Jan., 1858), Juarez refused to recognize the usurper, and finally established himself at Vera Cruz, by holding which he secured the receipt of the customs dues—in other words, of the larger half of the entire state revenue. Here he set up a provisional government, styling himself constitutional president, and issuing decrees for the confiscation of the property of the church, the institution of civil marriage, etc., in accordance with the reforms carried by Comonfort in 1857. Meanwhile, Miramon, who had superseded Zuloaga (Jan., 1859), prepared to take the field against his rival. His movements were, however, delayed by a counter-rising of Juarists in Mexico; and before he again advanced, Juarez had secured recognition from the United States by conceding the protectorate (refused to them by Miramon) over the proposed transit routes in the n. and in the isthmus of Tehuantepec. Early in 1860 Miramon besieged Vera Cruz, but his army suffered from want of supplies, his transports were intercepted by the United States ship-of-war *Saratoga,* and after a few weeks he was compelled to retire with loss. Juarez now assumed the offensive. At San Miguelito Miramon was totally defeated by Ortega, and fled to Europe. His rival entered Mexico (Jan., 1861), caused himself in June to be formally elected president for four years, and proceeded to execute the decrees against the clergy with great severity. But the finances of Mexico were now in a state of disorder, which even the wholesale confiscation of church lands could not remedy. In July, 1861, the government decreed suspension of payment for two years of the

indemnities due to England and France, and formally secured by the hypothecation of the customs dues. This act, coming at the end of a long series of outrages (mainly the work of Miramon and his faction), led to the intervention of the allied powers, and the occupation of Vera Cruz by England, France, and Spain. But it soon appeared that the French aimed at more than a simple redress of grievances. The appearance of the clerical chiefs Miramon and Almonte in their camp, and the extravagant demands of M. de Soligny, rendered any arrangement impossible. The failure of the negotiations at Soledad (Feb., 1862) was followed by the conference of Orizaba (April 9), in which England and Spain formally withdrew. France now threw off the mask, and Juarez appealed to the country, proclaiming a guerrilla war, and concluding a loan of 25,000,000 dollars with the American minister, Corwyn. The victory of Zaragoza at Puebla (May 5, 1862) raised the hopes of the Mexicans; but fresh troops arrived from France. Puebla fell (May 18, 1863), after a gallant resistance. Mexico and San Luis de Potosi followed, and in 1864 the republican government was removed to Monterey. The arrival of Maximilian in May was succeeded by further losses from battle and desertion. In Aug. Juarez sent his family to New Orleans, but "le petit Indien" himself still held on, although forced back on Chihuahua, and thence a year after across the frontier. His four years of office had also expired, and Maximilian availed himself of these events to issue the fatal decree of Oct., 1865, in which he declared the republic extinct *de jure et de facto*, and sentenced to death all Juarist leaders taken in arms. Juarez proclaimed in answer that he held office until the expulsion of the invaders rendered a fresh election practicable. By this time the complete pacification of the southern states enabled the Washington cabinet (which had persistently recognized Juarez) to interfere effectually on his behalf. Under diplomatic pressure (1866) Napoleon withdrew his troops, and the positions evacuated by the French were immediately occupied by the republicans. The unhappy Maximilian made a final stand in Queretaro, but was betrayed by Lopez, and shot (June 19, 1867) by order of court-martial—an ungenerous but not unjustifiable act of reprisal which Juarez, it is said, would have been unable to prevent. Mexico and Vera Cruz were reoccupied shortly after, and the triumph of the liberals was consummated by the re-election of Juarez to the presidency (Oct., 1867), after a ten years' struggle, in which he had successfully maintained the constitution of 1857, under which he took office, against domestic treason and foreign intervention. He was re-elected president in Oct., 1871, and held office till he died, June 18, 1872. Juarez, as governor of Oaxaca, was universally esteemed, and his honesty as a reformer has been attested by the British chargé d'affaires (Mr. Matthew's report, 1861), and by all the leading men in the United States.

JUAR'ROS, Domingo, d. about 1820; b. Guatemala. He was an ecclesiastic, and author of an important work on Central America, entitled *Compendio de la Historia de la Ciudad de Guatemala*, in 6 books.

JUBA I., d. 46 B.C., son of Hiempsal, king of Numidia, ascended the throne on his father's death, and, having quarreled with Cæsar, supported Pompey in the struggle between these two. He defeated and destroyed the army of Curio, Cæsar's lieutenant, in a fierce engagement near Utica; but was himself defeated at Thapsus, by Bocchus, king of Mauritania, and after fleeing from the battle-field destroyed his own life. The kingdom of Juba was made a Roman province after his death, and the historian Sallust was appointed its first governor. It was afterwards restored to Juba II., by Octavius, in exchange for other territory. The character of Juba in the under-plot of Addison's tragedy of *Cato* is founded on that of Juba I.

JUBÆ'A, a genus of palms of the same tribe with the cocoa-nut. *J. spectabilis* is a palm of 30 or 40 ft. high, with a wide-spreading crown of pinnate leaves; a native of Chili, where it is called *coquito*. The Chilians cut off the crown, and collect the sap, which flows freely for several months, a fresh slice of the top of the stem being cut off every morning. A good tree will yield ninety gallons of sap, which being boiled down to a syrup of the consistence of treacle, receives the name of *miel de palma* (palm-honey), and is an important article of the domestic economy of the country. The *Jubæa* is, in fact, the Jaggery (q.v.) palm of Chili.

JUBBULPORE, a t. of British India, in the territory of Saugor and Nerbudda, near the Nerbudda river, 200 m. s.w. of Allahabad, an important station on the East India railroad. Pop. 55,704. It is 1458 ft. above the sea, whence a road leads over the Vindhya mountains, through Bellari, to Panna in Bundelcund. It has wide and straight streets, an industrial school, and a military establishment. Several lakes and tanks are so full in the rainy season as to make the place inaccessible. The English here defeated, Dec. 19, 1817, 5,000 Mahratta troops of the rajah of Nagpore.

JU'BILEE, the Year of (Heb. *Yobel*), a peculiar institution among the Hebrews (Leviticus xxv.), by which, every fiftieth (*not* forty-ninth) year, the land that in the interval had passed out of the possession of those to whom it originally belonged was restored to them, and all who had been reduced to poverty, and obliged to hire themselves out as servants, were released from their bondage; no less were (Jos. Ant. iii. 12. 3) all debts remitted. The jubilee forms, as it were, an exalted sabbatical year (q.v.), and the land was completely to be left to itself in the former as in the latter. The design

of this institution was chiefly the restoration of the equilibrium in the families and tribes. It was to prevent the growth of an oligarchy of landowners, and the total impoverishment of some families; as well as to increase the fertility of the soil and the growth of the population. It was proclaimed at the end of the harvest-time, like the sabbatical year, on the tenth day of the seventh month—the day of atonement—by the yobel (a kind of horn), hence also its name. There is no trace in the whole history of the Hebrews down to the Babylonian exile that the jubilee had ever been observed: after the return, however, it appears to have been rigorously kept, like the sabbatical year, for some time at least; but, from its general impracticability, it must soon have fallen into disuse. When the sabbatical year was *de facto* repealed by Hillel's *prosbol* (a legal document entitling the creditor to claim his debt during this period), mention is no longer made of the yobel. The speculations of modern critics on the *possibility* of the yobel, and on the date of its inauguration, cannot prevail against the undeniable fact that it has been kept, and also that it is much more in harmony than the primitive theocratic character of the Mosaic institutions—according to which all the land was held as a kind of loan from Jehovah, who alone had an absolute right over it—than with those of any later period, to which it otherwise would have to be referred.

JUBILEE, or JUBILEE YEAR, an institution of the Roman Catholic church, the name of which is borrowed from that of the Jewish jubilee. The Catholic jubilee is of two kinds—"ordinary" and "extraordinary." The ordinary jubilee is that which is celebrated at stated intervals, the length of which has varied at different times. Its origin is traced to pope Boniface VIII., who issued, for the year 1300, a bull granting a plenary indulgence to all pilgrim-visitors of Rome during that year, on condition of their penitently confessing their sins and visiting the church of St. Peter and St. Paul, fifteen times if strangers, and thirty times if residents of the city. The invitation was accepted with marvelous enthusiasm. Innumerable troops of pilgrims from every part of the church flocked to Rome. Giovanni Villani, a contemporary chronicler, states that the constant number of pilgrims in Rome, not reckoning those who were on the road going or returning, during the entire year, never fell below 200,000. As instituted by Boniface, the jubilee was to have been held every hundredth year. Clement VI., in obedience to an earnest request from the people of Rome, abridged the time to fifty years. His jubilee accordingly took place in 1350, and was even more numerously attended than that of Boniface; the average number of pilgrims, until the heats of summer suspended their frequency, being, according to Matthew Villani, no fewer than 1,000,000! The term of interval was still further abridged by Urban VI., and again by Paul II., who, in 1470, ordered that henceforth each twenty-fifth year should be held as jubilee—an arrangement which has continued ever since to regulate the ordinary jubilee. Paul II. extended still more, in another way, the spiritual advantages of the jubilee, by dispensing with the personal pilgrimage to Rome, and granting the indulgence to all who should visit any church in their own country designated for the purpose, and should, if their means permitted, contribute a sum towards the expenses of the holy wars. The substitution by Leo X. of the fund for building St. Peter's church for that of the holy war, and the abusive and scandalous proceedings of many of those appointed to preach the indulgence (q.v.), were among the proximate causes of the reformation. In later jubilee years the pilgrimages to Rome gradually diminished in frequency, the indulgence being, for the most part, obtained by the performance of the prescribed works at home; but the observance itself has been punctually maintained at each recurring period, with the single exception of the year 1800, in which, owing to the vacancy of the holy see, and the troubles of the times, it was not held.

The extraordinary jubilee is ordered by the pope out of the regular period, either on his accession or on some occasion of public calamity, or in some critical condition of the fortunes of the church; one of the conditions for obtaining the indulgence in such cases being the recitation of certain stated prayers for the particular necessity in which the jubilee originated.

JUBILEES, BOOK OF, an apocryphal work, much used in the ancient church. The original Hebrew and the Greek translation were lost, but an Ethiopic version has been discovered in Abyssinia. It is called the jubilees, because it divides the biblical history of which it treats, from the creation of the world to the entrance of the Israelites into Canaan, into 50 jubilees of 49 years each, comprising 2,450 years, describing carefully every event according to the jubilee—Sabbatic year, or year in which it happened. It was designed as a commentary on the books of Genesis and Exodus, arranging minutely the chronology of the biblical history, solving difficulties found in the narratives of those books, giving more fully what was only hinted at in the sacred history, and expatiating upon the various religious observances. The author of the book is unknown, but many circumstances indicate that he was a Jew. All critics agree that it was written in Hebrew, translated into Greek, and that the Ethiopic was made from the Greek. Dillman gave a German translation from the Ethiopic, through which it has become known to Europeans. He divided the work into 50 chapters. Its exact date is not known, but critics have fixed it either in the first c. before Christ or about the birth of Christ. It is considered important to the interpretation of the Bible, and to the history of Jewish belief before the Christian era. The Greek version was made at a very early period of the

Christian era, was soon lost in the western church, but existed long after in the eastern. From the 11th or 12th c. it entirely disappeared. In 1844 Dr. Krapff found in the Abyssinian church an Ethiopic translation of the Greek, a manuscript copy of which was presented to the Tübingen university. It is considered as canonical by the Abyssinian church.

JU'DAH (Heb. *Yehuda*, "the bepraised one") was the fourth son of Jacob and Leah, and founder of the greatest and most numerous of the 12 tribes. In the march through the wilderness it had the post of honor—the van—assigned to it; and tradition narrates that its standard was a lion's whelp, with the words: "Arise, O Lord, and let thine enemies be scattered!" After the conquest of Canaan its territories stretched from the Dead sea on the e. to the Mediterranean on the w. (though the Philistines long held possession of the fertile district w. of the mountains of Judah), and from Jerusalem (excluding that city) on the n. to the land of the Amalekites on the south. The capital of the tribe was Hebron.

JUDAH, surnamed HAK-KADOSH, the holy; about 135–192; b. at Tiberias; son of Simon, of the tribe of Benjamin; a descendant of Hillel I. While a youth he was admitted to the Sanhedrin on account of his extraordinary knowledge of Jewish law, and on his father's death was made its president. He was called rabbi, and held in the highest veneration by the Jews. He was honored chiefly as the compiler of the Mishna. His last days were spent at Sapphoris. He is mentioned as the friend of the emperor Marcus Aurelius.

JUDAH BEN SAMUEL, surnamed HALLEVI (Arab. ABUL-HASSAN), b. Castile, in 11th or 12th c.; a Spanish rabbi, highly distinguished as a physician, theologian, and poet. His chief work, the *Kuzari*, in Arabic, contains discourses on religion between a king of the Khazars and a Jewish rabbi. It was translated into Hebrew, Latin, Spanish, and German. His Hebrew sacred songs have been translated into German. In the 12th c. he made a pilgrimage to Jerusalem, but nothing afterwards was heard of him. According to tradition he was assassinated by a Mussulman in Palestine.

JUDAI'ZERS. See EBIONITES.

JUDAS ISCARIOT, so called to distinguish him from the other apostle, Judas or Jude, who was also named Lebbeus and Thaddeus. Of his early life nothing is known, though it is supposed that he lived in Kerioth, a village in Judea, and that his name, Iscariot, means *of Kerioth*. He became a disciple of Jesus, afterwards an apostle, and finally his betrayer. While associating with Jesus and the eleven it appears that he acted as treasurer of the little company. Whether Jesus committed that work to him, or the other disciples left it to him, or he sought the office for himself, does not appear. We learn that on one occasion when a woman broke an alabaster box of costly ointment, and anointed the feet of Jesus therewith, Judas Iscariot said, "Why was not this ointment sold for three hundred pence and given to the poor?" Upon which the historian John makes this comment, "This he said, not that he cared for the poor, but because he was a thief and had the bag, and bare (that is, took and bore away) what was put therein." Very soon after this incident we find that when the conspiracy was laid to put Jesus to death, Judas agreed to betray Jesus to the chief priests for thirty pieces of silver. From that time he sought opportunity to betray him to them in the absence of the multitude, for they feared the people, many of whom were in sympathy with Jesus. Such an opportunity was soon presented. It was the time of the annual feast of the passover. Jesus with his company of twelve had partaken of the feast, and were about to withdraw to a garden where they often resorted for quiet and seclusion, but Judas left them and went out, and having received of the chief priests and elders a band of men and officers provided with weapons and lanterns, he led them in the darkness to the spot well known to him, where Jesus had just been engaged in prayer. Judas had given a sign to his band, saying, "Whomsoever I shall kiss, that same is he: hold him fast;" and as Jesus came out to meet them, saying, "Whom seek ye?" Judas said, "Hail, master," and drew near to kiss him. Jesus replied, "Judas, betrayest thou the Son of man with a kiss?" During the trial which followed, when Judas saw that Jesus was condemned by the chief priests and delivered to Pontius Pilate, the Roman governor, he repented and brought again to the priests and elders the pieces of silver which he had received for his crime, saying, "I have sinned in that I have betrayed the innocent blood." Perhaps the matter had gone further than he anticipated, and he may have hoped to awaken in them some of the sense of wrong-doing which he was beginning to feel, and so to effect a stay of proceedings. They answered, "What is that to us? see thou to that;" and he cast down the pieces of silver in the temple and went and hanged himself. An additional circumstance is related in the Acts of the Apostles concerning the end of this miserable man. The money which he returned, the priests decided, must not be put into the treasury, being the price of blood; so they used it for the purchase of the potter's field outside the city walls as a burial place for the poor and for strangers. Peter by a figure says that Judas purchased the field with the *reward of iniquity*. This was doubtless the place in which Judas met his terrible death, and which for that reason and also as being the price of the blood of Jesus, was called Aceldama. This character, moving like a dismal shadow in the luminous circle of Christ's companionship, has drawn much study.

Different views have been set forth as to his motives. Theories of partial excuse for him have not been wanting. It has been suggested even that he was acting in warm friendship towards his master; that, impatient with Christ's seemingly hesitating measures in asserting his rights and establishing his kingdom, Judas resolved to force a crisis of attack in which Christ would find himself compelled to resort to his supernatural power to discomfit his foes—Judas not doubting that Christ would easily overwhelm the opposers, and in the natural reaction of the popular feeling against the plotting priests, would find the whole nation at his feet acclaiming him king. Could this theory be maintained from the recorded facts there would seem to be no crime that could not be made a virtue. Doubtless, there was in this betrayal the usual mixture of motives which is common in human action, and the blinded judgment which pertains to wrong-doing; but Jesus calls this traitor "the son of perdition."

JUDAS MACCABÆUS, third son of Mattathias, succeeded the latter as leader of the celebrated revolt of the Maccabees, B.C. 166; defeated the Syrian armies and conquered Lysias and Gorgias, who opposed him with powerful forces. Establishing himself in Jerusalem he dethroned the idols, and restored the Hebrew worship, which had been expelled by Antiochus the Syrian. The struggle for supremacy was renewed by Antiochus Eupator, and although Judas defeated the Syrian armies in many engagements, he was himself finally beaten, and killed, B.C. 160.

JUDAS'S TREE (*Cercis*), a genus of trees of the natural order *leguminosæ*, sub-order *cæsalpiniceæ*. The common Judas's tree (*C. siliquastrum*) is a native of the s. of Europe and of the warmer temperate parts of Asia. It has almost orbicular, very obtuse leaves. The flowers, which are rose-colored, appear before the leaves. There is a legend that Judas hanged himself on a tree of this kind. The American Judas's tree (*C. canadensis*) is very similar, but has acuminate leaves. The flower-buds of both species are frequently pickled in vinegar. The wood of both species is very beautiful, veined with black, and takes an excellent polish.

JUDD, G. P., 1803–73; b. N. Y.; studied medicine, and in 1825 went to the Hawaiian islands as missionary physician of the American board. His connection with the mission was severed in 1842, and he became adviser and interpreter of Kamehameha III. He organized a ministry for the king, and was his minister of finance, discharging his functions with ability and success.

JUDD, NORMAN B., b. N. Y., 1815; studied law; admitted to the bar in 1836; practiced with success in Chicago. He engaged in politics and held many important offices in the state of Illinois. He was U. S. minister to Prussia, 1861–65; member of congress, 1867–71; and afterwards a railroad president. He d. 1878.

JUDD, ORANGE, b. N. Y., 1822; educated at Wesleyan university, Middletown, Conn.; was a teacher and lecturer, and in 1853 became editor of the *American Agriculturist*. He afterwards established a business in agricultural books, and for a number of years edited the agricultural department of the *New York Times*. In 1880 he was appointed by the president Indian commissioner. He has been a recognized authority on subjects connected with agriculture. His benefactions to the Wesleyan university have been frequent and liberal.

JUDD, SYLVESTER, 1813–53; b. Mass.; graduated at Yale in 1836; changed his religious opinions soon after leaving college; entered the Cambridge divinity school, and in 1840 became pastor of a Unitarian church in Augusta, Me., where he remained till his death. He was the author of the very popular romance, *Margaret*, of the poem *Philo*, and a volume of discourses on the *Church*.

JUDE, EPISTLE OF, one of the smallest and least important books in the canon of the New Testament, was placed among the *antilegomena* (doubtful writings) by the primitive church, while some even considered it spurious. It was not made use of by the Asiatic churches until the 4th c., and does not appear to have been known in the west until towards the end of the 2d. Even those who quote it do so with hesitation, such as Clemens Alexandrinus, Origen, and Jerome. At the reformation similar suspicions revived, and were entertained first by Luther and Calvin, and afterwards by the Magdeburg centuriators and Grotius. In modern times the tide of critical opinion has run strongly against its canonicity.

JUDE, or JUDAS, surnamed THADDEUS, or LEBBEUS, one of the 12 apostles. He is called in the English Bible the brother of James, the translators having inserted the word *brother*, and the generally received opinion is that they are right. But most of the eminent critical authorities render the words "Judas the son of James." The name of Jude occurs but once in the gospel narrative, in the question put to Christ (John xiv. 22). According to tradition he is connected with the founding of the church at Edessa. The Syrian tradition speaks of his living at Edessa, of his going to Assyria, and being martyred in Phenicia; while Nicephorus says that he died a natural death in Edessa. He is commemorated in the western church on Oct. 8.

JUDE'A. See PALESTINE.

JUDE, EPISTLE OF (*ante*), the author of which speaks of himself as Jude, the brother of James, is not found in the oldest Syriac version of the New Testament, and in the

time of Eusebius was ranked among the books which, though received by the majority, were doubted by some. Clement of Alexandria cited it under Jude's name, as the production of a prophetic mind; Origen spoke of it as being full of heavenly grace; Tertullian quoted it as Jude's work; in Jerome's day it was received among the Christian Scriptures as of divine authority, and it is found in the principal ancient catalogues of the New Testament books. The doubts spoken of concerning its canonical authority were owing partly to its brevity, which rendered it less likely to attract attention and secure a rapid circulation; and partly to its containing two statements which are not fully supported by any other known authority. The first has reference to a contention between Michael the archangel and Satan about the body of Moses; and the second attributes to Enoch, the 7th from Adam, a prophecy concerning the final coming of the Lord. Some suppose that these statements were taken from apocryphal books, and are therefore evidence that the writer of the epistle was not an inspired man. To this others reply that there is no evidence of any such quotations having been made, but that, from whatever source the statements were derived, all that the maintenance of Jude's inspiration requires is that they were true. On the question of their truth it has been said: (1) They have not been proved to be false. (2) Among the statements contained in ancient Jewish books of various sorts many were doubtless true. (3) That the promise given to the apostles of guidance into all truth necessary to make them unerring witnesses for God and Christ would save them from historical errors, as easily and fully as from errors of doctrine and opinion to which they were constantly exposed. (4) That the deportment attributed to Michael, appropriate even to an archangel, is supported also by Peter's affirmation concerning angels in general, and that the prophecy ascribed to Enoch is consistent with the analogy of Scripture truth.

The design of the epistle the writer himself clearly gives, saying that when thinking earnestly about writing to Christians, he perceived the absolute necessity of exhorting them to defend the truth, and to shun the errors of false and artful teachers who were striving to deceive the churches, turning the grace of God into an argument for a sinful life, and denying both God and Christ. To show that all such and their followers would be condemned, he reminds Christians that even those who had been delivered from Egypt were afterwards destroyed because of their unbelief, and that the angels who sinned were reserved to the same judgment as that which would come on the guilty cities of the plain. In like manner, he declares, would dreadful judgments be inflicted on those who were corrupting the faith and practice of the churches. He then exhorts all true Christians to remember that the coming of just such ungodly, evil, and hypocritical men had been foretold by the apostles of Christ; that they should not therefore be either surprised or disheartened, but on the contrary should for themselves be steadfast in the faith, secure in the love of God, and confident that through the mercy of Christ they would attain to eternal life; and for others should be at once compassionate towards the weak, and bold to snatch from destruction those that were ready to fall. The epistle closes with an acknowledgment of God's power to save, and an ascription to him of glory and praise.

JUDGE is the generic descriptive name given to those who are invested with the power of judging and deciding causes in the highest courts of common law. In Great Britain—though it is otherwise in America—it is not usual to designate the highest class of judges by the epithet of judge, and British lawyers never do so. Thus, instead of saying judge Blackstone, judge Pollock, judge Eldon, the proper description is—Mr. justice Blackstone, chief baron Pollock, lord chancellor Eldon, etc., according to the particular court in which they presided. In Scotland the usual prefix to the name judge is lord; and the judges there, on their appointment, often assume new titles in addition to the prefix "lord." In England the judges of the superior courts are only called lords while they sit in court, and are so addressed by counsel, but not elsewhere. The practice has long been for the crown to confer the honor of knighthood on all the judges of the superior courts of law and equity in England, but not in Ireland or Scotland. All the superior judges are appointed by the crown, and since 12 and 13 Will. III. c. 2, have held their offices during good behavior; since 1 Geo. III. c. 23, they have also continued to hold their appointments notwithstanding the demise of the crown. They can only be removed from their office on the address of both houses of parliament. They are all, except the master of the rolls, disqualified from sitting in the house of commons. Judges have no privileges over other persons in respect of their obeying the law, except that the common-law judges in England have the privilege of suing and being sued in their own court, though not of judging in their own cases.

The term judge has also been appropriated as the proper descriptive title of the judges of the county courts established in England in 1846.—*Judge ordinary*, in English law, is the descriptive title of one judge only—viz., the judge of the divorce and probate court. In Scotland the phrase is often applied to all judges, superior and inferior, whenever they have a fixed and determinate jurisdiction, in contradistinction to commissioners, who have an occasional and temporary judicial authority delegated to them.

JUDGE (*ante*). In the United States any public officer lawfully sitting by virtue of his commission, to hear and decide cases brought before him, is called a judge. The presiding officer of a court consisting of several judges is generally called chief-justice.

In regard to tenure, method of appointment, and duties of judges in the United States, see JUDICIARY. A judge is debarred from sitting on a case in which he has an interest, nor can he be a witness in a case tried before him. As a matter of fact, a judge is not debarred, save by professional etiquette and tradition, from presiding over a case in which he has been counsel. So long as a judge does not overstep his jurisdiction he is not liable, either civilly or criminally, for acts performed in the course of his judicial duties, though those acts be erroneous or corrupt; but in the latter case he may be removed by impeachment.

JUDGE-ADVOCATE, the title of an official attached to military commissions, or courts-martial, whose duties are analogous to those of prosecuting attorneys in civil courts; but whose functions, in relation to military law, are also similar to those of a district attorney, or corporation counsel, in being of an advisory character. The appointment of judge-advocates for special courts rests in the authority which appoints the court, whether that be the president, the secretary of war, or the general of the army. But there is also in the U. S. army a corps of four judge-advocates, with the rank of major, who are under the general direction of the judge-advocate-general, and who can be detailed on courts-martial or military commissions, but are usually stationed at the head-quarters of the military departments, where they act as legal advisers to the department commander, and may be appointed by them to court-martial duty. The official duties of a judge-advocate during a trial by court-martial or military commission, or examination by a court of inquiry, are as follows: preparation of the case for the prosecution, procuring of witnesses, administering the oath, opening the case for the prosecution with the necessary argument, questioning the witnesses, and submitting the case to the court. But besides these duties the judge-advocate has still another—seemingly anomalous in this connection—that of protecting the witness from improper or leading questions, and to that extent also acting as counsel for the accused. In the English military service the duties of the judge-advocate have been so far modified that he does not act as prosecutor, but solely in his advisory capacity in connection with the court, and as the recorder of its proceedings.

JUDGE-ADVOCATE-GENERAL, the supreme judge, under the mutiny act and articles of war, of the proceedings of courts-martial. This officer is also the adviser, in legal matters, of the commander-in-chief and secretary of state for war. Before confirmation the sentences of all courts-martial, with the evidence adduced, are submitted to him; and it is for him to represent to the commander-in-chief any illegality of procedure, or other circumstance rendering it undesirable that the queen should be advised to confirm the court's decision. The judge-advocate-general receives a salary of £2,000, and is a member of the house of commons and of the ministry—changing, of course, with the latter. As it is essential that the judge-advocate-general should have an intimate acquaintance with the military law, as well as with the general law of the land, he is provided with an assistant or deputy, whose office is permanent, and who is selected from among barristers of eminence.

The *Deputy-Judge-Advocate* is an officer holding a temporary commission as public prosecutor in every court-martial. He must be an officer of intelligence, as it is part of his duty to examine and cross-examine witnesses, to warn the members of the court of any illegality in their proceedings, and generally to fulfill, in the limited area of the court, the functions which belong to the judge-advocate-general in regard to the whole army.

JUDGE-ADVOCATE-GENERAL (*ante*), in the U. S. military service, the chief of the bureau of military justice at Washington, with the rank of brig.gen. To him the proceedings of all courts-martial, courts of inquiry, and military commissions are forwarded for revision and record. In England the judge-advocate-general is the final legal authority for the army, and the adviser of the crown in cases where any action of the sovereign is required. His power is supreme as to reviewing the proceedings of courts-martial, etc.

JUDGES, BOOK OF (Heb. *Shoftim*), a canonical book of the Old Testament, recording the achievements of those heroes who, at different periods in the early history of the Hebrews, before the consolidation of the government under a monarchy, from Joshua to Samuel, arose to deliver their countrymen from the oppressions of neighboring nations, but only three of whom, Deborah, Eli, and Samuel, were *judges* in our sense of the word. The contents of the book have given rise to much criticism. It cannot be said to be a *history*, properly speaking. The events recorded in it do not follow each other chronologically, nor is there any other order to be perceived in their arrangement. It is rather a collection of detached historical traditions from the time of the Hebrew republic—probably redacted in the commencement of the reign of David—from ancient poems and popular sagas. It exhibits (whether with a royalistic tendency, as has been supposed by some, or in order to point the moral that however deeply sunk a people—emphatically *the* people—might be in slavery or idolatry, or both, God would always send them a deliverer from either at the right time) the lawless and ungodly state of Israel during the greater part of this period, and the evil consequences their intimate connection with the idolatrous nations around them brought upon them. The book naturally falls into two portions—the first up to chapter xvi., containing the heroic deeds

of the single "judges"; the second, from chapter xvii., the two accounts of the idol of Micah, and of the crime of Benjamin. The space of time over which the book extends has of old been hotly contested: that it comprises no less than 300 years (cf. xi. 26) is, however, almost the only point on which we can feel certain, since there is no doubt that many of the events recorded in the book did not follow upon one another, but fell in the same period, a circumstance which chronologers generally have failed to take into account. The book itself differs considerably from the other historical books of the Bible by its simplicity and originality. That most of the heroic adventures related contain—sometimes, perhaps, under a highly poetical guise—true historical facts, has been doubted by but a very small number of critics. Ancient traditions make Samuel the author, or rather redactor, of the book, and there is certainly little to be said against, and much for, this supposition. Compare Ewald, Wette, Rosenmüller, Studer, Keil, etc. See JEWS.

***JUDGE'S CHAMBERS** means the place where a single common-law judge sits, near Chancery lane, London, in an informal manner, to hear attorneys make applications of an unimportant nature arising out of actions pending in court. If the judge refuse, or decide wrongly, there is an appeal to the court of which he is a judge. In general, a judge sits at chambers all the year round, to dispose of these applications, which are chiefly matters of form, but of urgency. See *Supp.*, page 888.

JUDGES OF ISRAEL, a name given to those who at intervals directed the affairs of the Israelites during the four and a half centuries which elapsed from the death of Joshua to the reign of Saul. Their names were Othoniel, Ehud, Shamgar, Deborah, Barak, Gideon, Abimelech, Tola, Jair, Jephthah, Ibzan, Elon, Abdon, Samson, Eli, Samuel. They were called *shophetim*, from a word denoting both to judge in the usual sense, and to rule or govern, a name appropriate because judging and ruling are intimately connected in the east. They were then not merely those who determined litigated questions, but persons appointed to perform various duties, which are to be ascertained from the history. It is common to consider their chief function as that of delivering Israel from foreign oppression. But all did not thus begin their career. Eli and Samuel were not military men. Deborah judged Israel before she went to war against Jabin; and whether Jair, Ibzan, Elon, and Abdon had a military command is unknown. Moreover, the nation in general had much more prosperity than adversity in the time of the judges, the whole period of foreign oppression being only 111 years—less than a fourth part of their dominion. It is true that many of these judges arose during the time of foreign oppression, and to military exploits was often due their appointment as judges; but, in general, the appointment depended on the exigencies of the times, requiring gifts or influence adequate for deciding questions between tribe and tribe, administering public affairs, and acting as the head of the people in their intercourse with their neighbors and oppressors. The judges then were faithful men who acted for the most part as agents of the divine will, regents of the invisible king of the chosen people. "They were," says Jahn, "not merely the deliverers of the state from a foreign yoke, but destroyers of idolatry, foes of pagan vices, promoters of the knowledge of God, of religion and of morality; restorers of theocracy in the minds of the Hebrews, and powerful instruments of divine providence in the promotion of the great design of preserving the Hebrew constitution, and by that means of rescuing the true religion from destruction." In nearly every case recorded the judges were appointed by the free choice of the people. The only cases of direct divine appointment are those of Gideon and Samson. The office was for life, but not hereditary, and the judge had no power to appoint a successor. Their authority was limited by the Hebrew law, and in doubtful cases they were required to consult the divine king through the priest. In great emergencies they convened a general assembly of the rulers, over which they presided, and in which they exerted a great influence. They could not levy taxes or appoint officers. Their authority was over only those tribes that elected or acknowledged them. They received no income, bore no external marks of dignity, were simple in their style of life, free from avarice, patriotic. Regarding themselves as the officers of God they in most instances strove to bring their countrymen to acknowledge his authority as that of their invisible king.

JUDGMENT is, in English law, the term usually applied to the final determination of a common-law court in an action, and when the litigation is at an end. In the courts of equity the more usual corresponding term is a decree or order, and in criminal and admiralty courts a sentence. All judgments of the superior courts are, as a general rule, capable of being appealed against (see APPEAL). When a judgment is not appealed against within a certain time allowed for the purpose, then it is final, and binding on the parties. If the judgment is registered it will have the effect of preventing the judgment debtor from selling or alienating his lands, but in general has no such effect on his goods and chattels or personal estate, except money invested in government stock. In order to make a judgment effectual in an action of debt, if the debtor refuses to pay, a further process is necessary on the part of the creditor, called execution (q.v.) In Scotland judgment is usually called a decree (q.v.), and judgment by default is called a decree in absence.

JUDGMENT (*ante*), a term expressing not only the decision or conclusion of a court in the matter of a trial at law, but also, in certain instances, conveying therewith the order thereupon, as in cases where it awards damages upon the verdict of a jury, or in the instance of what is known as a judgment debtor. Judgment *by default* is rendered in case of the non-appearance of the defendant in court to plead his cause, either personally or by counsel; and in such cases execution is issued for recovery of damages, or, if the suit be for debt, for the amount of indebtedness with costs, without further notice to the one adjudicated against. Confession of judgment is made on the withdrawal of the defendant's plea, when judgment is entered for the plaintiff; of *nolle prosequi*, when the plaintiff, after appearance in court, retires from the prosecution; judgment of *non suit* (from *non sequitur*, it does not follow) is given when the plaintiff fails to appear; judgment in error may either affirm a previous judgment, recall it on account of an error in fact, or reverse it because of an error in law; and interlocutory judgments are given during the progress of an action without concluding it, as in declaring the right of the plaintiff, without awarding damages, or judgment for the plaintiff on a plea of abatement, when it decides that the cause must proceed, and requires the defendant to improve his plea. A final judgment is one which ends the action, as a judgment for the defendant at any time, or for the plaintiff after verdict. But a judgment of *non suit* does not bar the plaintiff from beginning another suit upon the same cause of action.

JUDGMENT. This familiar word of every-day discourse has a technical meaning in logic, to which corresponds its acceptation as the name of a faculty of the mind. A "judgment," in logic, is an affirmation of some kind or other, as, "snow is white," "man is mortal." The contrast to it is a mere notion, as white, mountain, mortality. In a judgment, two notions must always enter, but this is not the whole; there must be some declaration coupling the two together, a function performed in all cases by a verb. A complete meaning, as expressed in a grammatical sentence, is a judgment. Other designations for the same thing are, proposition, assertion, prediction.

The intellectual faculty called judgment has reference to the logical force of the word, and means the power of forming judgments, and by implication, the further power of determining them to be true or false. This last function is perhaps what is most prominently implied in the faculty, as commonly understood.

The intellectual power of judging, when probed to its deepest foundations in the mind, resolves itself into one of two things—the discrimination of difference, or the perception of agreement in the midst of difference (see INTELLECT). A judge in a court of law finds that a case comes under, or does not come under, a certain statute; which finding constitutes his decision. A scientific man decides a theory to be true by a certain extent of coincidence with observed fact. An artist approves or disapproves a work of art by its agreeing or disagreeing with his standard, or those previous productions that have settled his conception of excellence in that species.

JUDGMENT (in theology). The doctrine of a judgment after death has always been associated with the belief in man's immortality, and is maintained as a doctrine of natural religion on the ground of that responsibility of which conscience always more or less distinctly testifies, and of the evident absence of a due proportion of rewards and punishments to human actions in this life. This doctrine, however, as a doctrine of the Christian religion, contains many things of which there is no evidence apart from revelation. Thus, we are told of a *day* or time *of judgment*, when, in great solemnity, and in presence of an assembled universe, the judgment shall be pronounced; also, that the Lord Jesus Christ is to appear in glory as judge. As a doctrine of revelation the doctrine of a final judgment is also brought into close connection with that of the resurrection (q.v.) of the dead.

JUDGMENT, FINAL (JUDGMENT, *ante*), a point on which various theories have been held. One is that of the common school of rationalists denying a general judgment or a final judicial period, and asserting that men in this life are under a moral government, whereby, in the future world, rewards will come to the good and punishments to the wicked. Another view is that the last judgment is a process now in progress, and even continuous through all history; the history of the world being a continuous manifestation of God is therein necessarily a continuous judging of the world. The Messianic period being in the Old Testament spoken of as the "last day," the "last time," the "end of days," the "end of the world," the Jews believed that at the coming of the Messiah the heathen would be punished, and the chosen people exalted. The view of the pre-millenarians is, that to judge is to reign; and that the last judgment will begin when the personal reign of Christ upon earth begins. Another theory is that the day of judgment is a protracted future dispensation, commencing with the second advent of Christ, and continuing through the thousand years of his personal reign upon earth. The theory of Swedenborg is that the spiritual history of mankind is divided into dispensations of divine truth, i.e., into a succession of churches, and that a final judgment takes place in the spiritual world at the close of each dispensation. According to him there have been several "final" judgments; first, at the flood, to close the Adamic or antediluvian dispensation; second, at the Red sea and through the ten plagues, to close the Noatic dispensation; third, at the coming of our Lord, to close the Mosaic dispensation; fourth, at the time of the reformation, or a little after, in 1759, to close the dispensation of the

first Christian church. The doctrine held in common by Protestants, Romanists, and the Greek church is that the final judgment is an event at the end of the world, when the eternal state of men and angels, good and bad, will be determined and publicly manifested; that the rule will be the light enjoyed, either from nature and conscience or from these with the law and gospel contained in the Scriptures; that the ground or matter of judgment will be, not professions, or relations, or reputation, but the "deeds done in the body," and these deeds not as external, but as man's vital, spiritual acts—"the secrets of the heart," in other words, real character; that the time will be at the second coming of Christ, and at the general resurrection; that the place (as some think) will be in the air, because the judge will come in the clouds of heaven, when the living saints will be changed, the dead saints raised, and both caught up to meet the Lord in the air; or (as others think) the place will be the new earth to which the glorified will descend with Christ. Holy Scripture, while plainly and repeatedly announcing the final judgment and establishing the principles of its process, seems to be silent on the details of time, place, and circumstances—revealing only that it will be the world's great natural, historical, and moral consummation under the ultimate manifestation of Christ in his divine humanity, and accompanying the resurrection of the dead.

JUDIC, Anna Damiens. See page 888.

JUDICIAL COMMITTEE of the **PRIVY-COUNCIL,** those members of the privy-council who sit as a court of justice in the hearing of appeals. See Privy-Council.

JUDICIAL DECLARATION, in Scotch law, means a declaration made by one of the parties to a suit, and who has been specially ordered by the court to be examined on a particular point. It is not a statement made on oath. In England the phrase is seldom used, though the same result is obtained by what are called admissions of the parties.

JUDICIAL FACTOR, in Scotch law, is a person appointed by the court of session, on special application, as a guardian to protect the interests of minors, absent parties, and lunatics. In England and Ireland the corresponding officers are called receivers or trustees, according to circumstances.

JUDICIAL RATIFICATION, in Scotch law, means the declaration made by a married woman in the absence of her husband, before a justice of the peace, to the effect that a disposition or deed of alienation of her heritable property has been made without coercion or fear on the part of her husband, and voluntarily on her part. A notary and two witnesses must also be present, and the former indorses on the deed a memorandum of the ratification. The object is to remove objections which might otherwise be made to the validity of the deed. In England a corresponding process is called an acknowledgment of a deed by a married woman.

JUDICIAL REMIT, in Scotch law, is a reference by a court or judge of a cause, or part of a cause, to the decision of an arbiter or nominee, such as an engineer or accountant. The matter referred is generally some technical matter in which the referee is specially skilled. In England the corresponding phrase is a reference to an arbitrator or expert to report.

***JUDICIAL SEPARATION,** in English law, is the separation of two married persons by order of the court of divorce. Married persons may, if they please, mutually agree to live separate, and they may enter into a deed of separation for that purpose, which to some extent is recognized as valid by courts of equity. This is called voluntary separation. But, in the eye of the law, two married persons living apart are still married, and retain the status of married persons, and must sue and be sued in all respects the same as if they were still cohabiting. And a deed of separation is always revocable by the parties, though to some extent binding on each, if the other do not consent to renew the cohabitation. But when the parties have not mutually consented to separate, one of them can compel a judicial separation for certain grounds of misconduct. Thus, either party may apply on the ground of adultery or cruelty, or desertion without cause for two years and upwards. The kind of cruelty which has been held a ground of judicial separation is difficult of definition.

The consequences of a judicial separation are as follow: The parties, not being divorced, cannot marry again; but there is no longer the duty of cohabiting. Part of the decree may consist of an award of a certain income to the wife after separation, and the court may make orders as to the custody and maintenance of the children. But, irrespective of this, the wife becomes, to all intents and purposes as regards her future property, in the same position as if she were unmarried. On the other hand, the husband is no longer responsible for maintaining his wife, except so far as he may have been ordered to pay her alimony, and he is not liable for her future debts. In 1857 the law on this head was materially improved, and a new divorce court established, which, since the judicature act of 1873, falls within the probate, divorce, and admiralty division of the high court of justice.

In Scotland the law has also been recently changed, and now nearly coincides with the English law in many respects, this improvement being made by the conjugal rights' act, 24 and 25 Vict. c. 86. By that act, whenever a decree of separation *a mensa et thoro* is obtained at the instance of the wife, all property which she may acquire, or which may devolve upon her, is held entirely separate from and independent of her husband; she

can bequeath it by will as if he were dead; she can also enter into contracts, and sue and be sued in her own name; and the husband is no longer liable for necessaries or her debts, except so far as he is bound by the decree of separation to pay to her aliment. As regards the grounds of judicial separation in Scotland, they are nearly the same, being described by Mr. Bell in his *Principles* thus: whenever life is endangered, or there is fair and reasonable ground of apprehension of personal violence, or there is continued annoyance, wearing out and exhausting the party, or there are adulterous practices. It will, however, be found that the grounds of divorce are more ample in Scotland than in England. See MARRIAGE. See *Supp.*, page 888.

JUDICIARY IN THE UNITED STATES. In other countries the judicial is more or less complicated with the legislative function; but in the United States the three departments of government, legislative, executive, and judicial, are scrupulously separated from each other. The house of lords, unlike the American senate, was until recently both a legislative and judicial body, and even now some of its members are judges. The lord chancellor, the highest judicial officer of the kingdom, exercises various powers of a political rather than a judicial character; and the master of the rolls is eligible to a seat in parliament. This investiture of the same person with both judicial and legislative functions has its roots in early Saxon and Norman practices, not yet wholly outgrown. Judges of United States courts can neither serve in congress, fill the presidential chair, nor exercise any political power except that of individual voters.

The judicial power of the United States is vested by the constitution in a supreme court and such inferior courts as congress may from time to time establish. The supreme court consists of a chief-justice and nine associate justices, appointed by the president with the consent of the senate, holding office during good behavior, and receiving for their services a compensation which shall not be diminished during their continuance in office. They have the privilege (if they have been commissioned not less than 10 years) of resigning at the age of 70, and drawing their salaries through life. "The judicial power shall extend to all cases in law and equity arising under this constitution, the laws of the United States, or treaties made or which shall be made under their authority; to all cases affecting ambassadors, or other public ministers, and consuls; to all cases of admiralty and maritime jurisdiction; to controversies to which the United States shall be a party; to controversies between two or more states; between a state and a citizen of another state; between citizens of different states; between citizens of the same state claiming lands under grants of different states; and between a state, or the citizens thereof, and foreign states, citizens, or subjects. In all cases affecting ambassadors or other public ministers, and consuls, and those in which a state shall be party, the supreme court shall have original jurisdiction. In all the other cases before mentioned the supreme court shall have appellate jurisdiction both as to law and as to fact, with such exceptions and under such regulations as congress shall make." (U. S. Constitution, art. 3, secs. 1, 2.) The supreme court has appellate jurisdiction over cases from the circuit courts where the matter in controversy has a value of over $1000. By the act of 1789, c. 20, sec. 9, the United States is divided into judicial districts, and in each district a district court is established consisting of one judge resident in the district. These courts have both civil and criminal jurisdiction. In their civil jurisdiction they have the powers of a court of admiralty, and also certain extraordinary powers conferred by statute. Their jurisdiction extends over cases of salvage, seizures, prize causes, torts committed on the high seas or within ebb and flow of tide, and maritime contracts. By an act of congress passed in 1845, the district courts were given jurisdiction over contracts and torts in regard to vessels plying between ports in different states on the lakes. The extraordinary jurisdiction of the district courts extends over captures made within the waters of the United States; seizures under the U. S. laws of import, navigation, or trade; suits brought by or against a consul or vice-consul; suits brought by an alien for a tort in violation of laws or treaties of the United States, and over cases in bankruptcy. The criminal jurisdiction of the district courts is concurrent with that of the circuit courts over non-capital offenses against the United States. These districts compose ten circuits, for each of which a circuit court is established, consisting of one of the justices of the supreme court and a circuit judge or a district judge. The circuit courts have original jurisdiction in civil suits "at common law or in equity, where the matter in dispute exceeds in value $500, exclusive of costs, and the United States are plaintiffs or petitioners, or an alien is a party, or the suit is between a citizen of the state where the suit is brought and a citizen of another state." They have original jurisdiction in cases arising from violation of the copyright or patent laws. The circuit courts have appellate jurisdiction by writs of error to the district courts or appeals from the latter. Other courts of the United States are the territorial courts established in each territory, and consisting of a chief-justice and two associate justices holding office for four years; and the court of claims, consisting of a chief-justice and four associates, with jurisdiction to pass upon all claims resting upon an act of congress, or a department rule, or contract with the United States.

In the several states of the United States the judiciary is either appointed by the executive, or, more commonly, elected by the legislature or directly by the people.

The organization of the judiciary is different in the different states, and does not permit of general description here. In the older states the judges were for a long time generally nominated by the governor and confirmed by the senate, holding office during good behavior. To this, however, there was at least one exception; in Vermont, from a very early day, the judges were chosen annually by the legislature; now they are chosen in the same way biennially, the legislature meeting but once in two years. This method of appointment, which at the time of its adoption was contrary to the received traditions, and therefore regarded with distrust as likely to impair the dignity and independence of the judiciary, is admitted to have worked well. As a general rule, the judges have been the men best fitted for judicial station, and the courts have accordingly maintained a very high character. Nor have the judges been changed more frequently there than in states where they have been appointed in the old way and for longer terms. Of late years, in many states, the practice of electing judges for longer or shorter terms by popular suffrage has been adopted. In some cities of the largest class it has happened that incompetent and even corrupt men have secured election to the bench. But it is equally true that, under the old system of appointment, unfit men have attained judicial station as the reward of party service.

In this country it is the universal rule that a judge is not liable to a civil action for acts done in the performance of his legal duties; but for any high crime or misdemeanor he may be impeached. Though the powers to be exercised by any branch of government, national or state, in this country, are carefully defined in the written constitutions, still the interpretation of those constitutions gives rise to very important and delicate questions, which, under our system, are authoritatively settled by the courts of final resort. This power of interpreting the fundamental law is of the highest importance. It is the confirmed habit of the American people to regard as conclusive and binding for the time being the decisions of the judiciary upon questions of constitutional interpretation. Yet such decisions are always liable to review and reversal by the courts themselves. A striking example of this is furnished in the celebrated "Dred Scott" case, wherein it was decided by the supreme court of the United States that negroes were not citizens, and therefore that they might be constitutionally held in slavery; but that decision has no force or authority in the same court as now constituted, and has been effectually, though not formally, reversed.

JUDICIUM POPULI (*judgment of the people*). In the early Roman days a custom prevailed of submitting to the people dissensions between public officers, accusations against them, etc., as matters of public interest. It is supposed that the *judicia publica* of later days were evolved out of this custom. We know that in ancient Greece and Rome the people were the judges, and it was only because all were not willing to serve in such a capacity that lots were drawn. The earliest evidence which we possess on this subject points to the fact that actions brought by private individuals in defense of their private rights, and resting on special laws, were adjudged by special magistrates, while subjects of public interest (*judicia popularia*) were decided by the popular voice in the popular assembly. In due time the increase of statute laws caused the submission of large numbers of cases to private tribunals, and the *judicia populi* were replaced by the *judicia publica*. The legends of early Rome assert that the kings presided in person over the popular tribunals; but as early as B.C. 508 we find magistrates appointed, called *quæsetores* or *quæstores rerum capitalium*, who, although at first chosen for special cases, were soon endowed with permanent judicial functions (*quæstores perpetui*). After B.C. 149 the prætor became president of the popular assembly. Additional prætors became necessary from time to time until the full number of 9 was reached in the reign of Sulla, each with jurisdiction over a particular class of offenses. This was the foundation of the criminal courts. The accuser might be any citizen cognizant of the facts, but the *judices* (judges) were chosen by lot. Verdicts were given by ballot and were called *leges*, and supposed to be binding in all similar cases of offense, though they were not always followed. Many contests arose as to the designation of the *judices;* 350 names were ordered by the *lex Calpurnia* to be inscribed on tablets, and from these the judges were selected by lot. From 104 B.C. no one who had been tribune, quæstor, or triumvir, no senator or near relation of a senator, no non-resident, and no one under 30 or over 60 years of age, was eligible for judicial office. It was the prætor's office to choose 450 judices each term, who were drawn in each separate case individually by lot. The *lex Plautia*, B.C. 89, allowed the judices to be of any class, but the *lex Aurelia*, B.C. 70, limited them to three classes—senators, equites, and tribuni ærarii. In Augustus's reign the ordinary number of judges in each case was seventy.

JU'DITH, the heroine of an apocryphal and fictitious book (probably of the 2d c. B.C.; Movers, Ewald, etc.) called by her name, is represented as a beautiful Jewess of Bethulia, who perils her life and chastity in the tent of Holofernes, gen. of Nebuchadnezzar, in order to save her native town, by the assassination of the Assyrian commander. This she achieves, and escapes with the head of Holofernes to Bethulia. Her townsmen are inspired with a sudden enthusiasm, rush out upon the enemy, and completely defeat them. The tale is not mentioned by Josephus; and has, from an early period, been held to be an allegory; but it seems more probable that it is a

legend founded on some real fact. It has frequently furnished poets and painters with subjects.

JUDSON, ADONIRAM, D.D., 1788–1850; b. Mass.; graduated at Brown university, 1807; at Andover theological seminary, 1810. Reading Buchanan's *Star in the East* while in the seminary, he was inspired with missionary zeal, and in behalf of five other students and himself he addressed a letter to the General Association of Massachusetts (Congregational), expressing their wish to labor among the heathen, and asking advice. This resulted in the formation of the American board of commissioners for foreign missions. Mr. Judson was sent to confer with the London missionary society and ask their aid. On the voyage he was captured by a French privateer, and thrown into prison at Bayonne, but when released prosecuted his errand. After his return he, with Messrs. Newell, Nott, Hall, and Rice, were appointed by the American board as missionaries to India or Burmah. Mr. Judson married Miss Ann Hasseltine. He was ordained Feb. 6, 1812, and Feb. 19 they sailed for Calcutta. Arriving, they were ordered by the East India government to return home in the vessel which brought them; and, though this demand was modified, they were required to leave soon. Mr. and Mrs. Judson having changed their views in regard to baptism, were immersed by Dr. Ward of Calcutta. This, with other results, awakened among the Baptists of America new interest in missions, and led to the formation of the American Baptist missionary union. Mr. and Mrs. Judson went to the isle of France, afterwards to Madras, with the design of reaching Penang, but, being thwarted in their wishes, took passage for Rangoon. Here, alone and without assured means of future support, they entered upon the study of the language. The care of the mission was assumed by the Baptist union. Within a few years they gathered a church of 18 members, and many natives were impressed by their lives of helpful kindness and their Christian instructions. The government, however, had given some tokens of disapproval. Dr. Price, a physician, having joined the mission, was sent for by the king to come to Ava, the capital, and Dr. Judson removed thither to act as his interpreter. War breaking out between the East India company and Burmah, the foreign residents at Ava endured great perils and hardships. Dr. Judson was arrested at his dwelling, bound with chains, thrown into the death-prison, and subjected to cruel indignities and barbarities. By entreaties and presents his wife sometimes obtained the privilege of ministering to him in the prison, without which he must have died from hunger and suffering. After nearly two years he was released, in Feb., 1826, on the demand of gen. sir Archibald Campbell. He commenced a new mission in Amherst, but an embassy being sent thence to negotiate a treaty which it was hoped would secure religious toleration, his services as interpreter were again required in Ava. During his absence his wife died, worn out by protracted toils and exposures, and by successive attacks of malignant fever. In 1827 he removed to Maulmein, where he found Mr. and Mrs. Wade had arrived before him. Here he erected a zayat on a public thoroughfare, where he spent most of his time, preaching or reading the Scriptures to every one who came to him. Mr. Wade did the same in another part of the city. Much light went forth from these centers. A church was formed. The converts were sometimes tested by severe opposition. Dr. Judson took several trips into the interior of the country, and shared in the remarkably interesting work among the Karens. In 1834 he married Mrs. Boardman, who had been a most earnest laborer, both as associated with Mr. Boardman and after his death. In 1839 Dr. Judson was disabled from speaking and threatened with serious pulmonary disease. He took a short voyage, and another in 1841 on account of sickness of the whole family, and in 1845, as the only prospect of life for Mrs. Judson, they all embarked for America. Mrs. Judson died off St. Helena, and her remains were interred on the island. Dr. Judson was received on his arrival in America by Christians of every name with great warmth of affection and esteem. While seeking some one to write a memoir of Mrs. Judson he met Miss Chubbuck, a writer well known in America under the name of "Fanny Forester," to whom he committed the undertaking. The acquaintance formed while this work was in progress led Dr. Judson to ask Miss Chubbuck to go with him to Burmah. They were married, and in 1847 we find them in Rangoon. Here he gave himself partly to the preparation of a dictionary, for which his accurate knowledge of the language qualified him, and to which he had often been urged, and partly to Christian teaching. In 1850, his health having declined almost beyond the possibility of recovery, he was carried in a litter on board ship, in the hope that, as before, a voyage would benefit him. Mrs. Judson was unable to take the voyage with her husband. Mr. Ranney, the mission printer, and a faithful Bengalee servant, accompanied him. He revived a little after going out to sea, but was soon much worse. Still he said, "I feel too much life in me to believe that I shall die at present." But his work was near its end. He died, and his body was committed to the ocean, April 12, 1850, scarcely three days out of sight of the mountains of Burmah. Numerous converts, a corps of trained native assistants, the translation of the Bible and other valuable books into Burmese, and a large Burmese and English dictionary nearly completed, are some of the direct fruits of his 37 years of missionary service.

JUDSON, ANN HASSELTINE, 1789–1826; b. Mass.; educated at Bradford academy, where she developed superior mental endowments, and a decided religious charac-

ter. In 1812 she married rev. Dr. Adoniram Judson, whom she accompanied to Burmah, became an efficient missionary at Rangoon, and shared with great fortitude his trials and sufferings. In 1821 her health failing, she embarked for America, stopping awhile in England. While at home her history of the Burman mission, commenced in London, was published, and an edition published in England. With health partially restored she returned to Burmah in June, 1823, and a new mission was commenced in Ava. War breaking out between Burmah and England, Dr. Judson having been captured, fettered, and committed to the death-prison, she was confined in her own house under guard of ten ruffianly men, deprived of her furniture, and most of her articles of property. On the third day, being released, she began to devise means for her husband's liberation. She followed him from prison to prison, ministering to his wants, trying to soften the hearts of his keepers, to mitigate his sufferings, interceding with government officials or with members of the royal family. For a year and a half she thus exerted herself, walking miles in feeble health, in the darkness of the night, or under a noon-day sun, with a babe of three months in her arms. By her untiring entreaties, the offer of large presents, and finally the demand of sir Archibald Campbell, Dr. Judson's liberation was effected. In the midst of her efforts she was attacked with malignant fever, and her life was despaired of. After regaining their freedom a new mission was commenced at Amherst. Dr. Judson immediately left for Ava as one of an embassy sent to negotiate a new treaty, and in his absence a remittent fever attacked her, already enfeebled by sufferings and disease, and after 18 days ended in her death. She was a woman of earnest piety, self-sacrificing devotion, vigorous intellect, indomitable perseverance, and unaffected dignity and refinement.

JUDSON, Edward, d.d. See page 888.

JUDSON, Emily Chubbuck, 1817–54; b. N. Y.; was well educated; taught a seminary for girls at Utica, and sailed for Burmah as the wife (1846) of Dr. Adoniram Judson. She was a popular writer, contributing articles of poetry and prose under the pseudonym of "Fanny Forester" to the New York *Weekly Mirror*, the *Knickerbocker*, and the *American Baptist Magazine*. She wrote also Sunday-school books. Dr. Judson having died, she returned in 1851 to the United States in impaired health, and devoted herself mainly to the revision of the memoirs of her husband by president Wayland. Her essays, sketches, and poems in the *Mirror* were collected under the title of *Alderbrook*, and her domestic poems under that of *Olio*. Her other works in prose were *The Kathayan Slave*, and *Memoir of Mrs. Sarah B. Judson*. Some of her best poems were composed in Burmah.

JUDSON, Sarah Hall (Boardman), 1803–46; b. N. H.; married in 1825 the rev. George Dana Boardman, and embarked July 16 for Calcutta. In consequence of the war in Burmah they remained in Calcutta until 1827, when they embarked for Burmah, and commenced a mission at Maulmain, which became the chief seat of Baptist missions in Burmah. From this they were transferred in 1828 to Tavoy, among the Karens, where in two years he died. She continued her missionary work, making tours in the Karen wilderness, "through wild mountain passes, over swollen streams and deceitful marshes, and among the craggy rocks, and tangled shrubs of the jungle." Sitting in the zayat, hundreds gathered around her, and she instructed them through an interpreter. In 1834 she was married to Dr. Adoniram Judson. She translated part of *Pilgrim's Progress*, several tracts, and a hymn-book into Burmese, and before a mission was established among the Peguans, she learned their language, and superintended the translation of the New Testament and the principal Burmese tracts into the Peguan tongue. She also contributed valuable articles to the Burmese newspapers. Her health having failed, she sailed for America with Dr. Judson in 1845, and died on shipboard in the port of St. Helena, and was buried on the island.

JUEL, Niels (Nicholas), 1629–97; b. Denmark; a naval officer; served with Von Tromp and De Ruyter in the Dutch navy. In 1659 he had command of the Danish fleet engaged in the defense of Copenhagen, which was attacked by the Swedes. In 1676 he distinguished himself in a naval victory which resulted in the capture of the island of Gothland, and the following year totally defeated the Swedes in a desperate sea-fight, for which success he was made grand-admiral-lieutenant, and received other honors and emoluments.

JUG'GERNAUT, Jaggernaut', or Jaggernaut Puri, or Puri, is the name of a t. in Orissa (85° 54′ long., and 19° 45′ lat.), celebrated as one of the chief places of pilgrimage in India. It owes its reputation to a temple erected there in honor of Vishnu, and containing an idol of this Hindu god, called *Jaggernaut* (commonly *Juggernaut*), a corruption of the Sanscrit word *Jagannâtha*, i.e., lord of the world. According to a legend related in the Ayeen Akbery, a king desirous of founding a city sent a learned Brahman to pitch upon a proper spot. The Brahman, after a long search, arrived upon the banks of the sea, and there saw a crow diving into the water, and, having washed its body, making obeisance to the sea. Understanding the language of the birds, he learned from the crow that, if he remained there a short time, he would comprehend the wonders of this land. The king, apprised of this occurrence, built on the spot where the crow had appeared a large city and a place of worship. The rajah one night heard in a dream a voice saying: "On a certain day, cast thine eyes on the sea-shore, when there will arise out of the water a piece of wood 52 in. long and 1½ cubits broad; this is the true form of the deity; take it up, and keep it hidden in thine house seven days; and in whatever

shape it shall then appear, place it in the temple, and worship it." It happened as the rajah had dreamed, and the image called by him Jagannâtha became the object of worship of all ranks of people, and performed many miracles. According to another legend, the image arising from the water was an avatâra or incarnation of Vishnu; it was fashioned by Vis'wakarman, the architect of the gods, into a fourfold idol, which represented the supreme deity, and the temple itself was erected over it, and inaugurated by the god Brahmâ and his divine court. The present temple was finished in 1198 A.D., under the government of the celebrated rajah of Orissa, Anang Bhim Deo. Whether the worship of Jaggernaut was originally one in honor of Vishnu or not may be doubtful. The notoriety it has gained is due especially to the fanaticism which induced, and still induces, thousands of Hindu believers to sacrifice their lives, in the hope of attaining eternal bliss, by throwing themselves under the wheels of the chariot which carries in procession the idol of the god. It is just, however, to state that this practice, which in former times prevailed to a fearful extent, is greatly abating in our days.

JUGGLERS (Fr. *jongleurs*), a term now almost synonymous with conjurer, and applied to persons who perform tricks of legerdemain, originally designated the professional musicians who attended the troubadours and trouvéres of Provence and the north of France, either singing their poems, or, if they sung them themselves, accompanying them with an instrument, which was reckoned beneath the dignity of the poet himself. The word is derived from the mediæval Latin *joculator;* in Provencal, *joglar, joglador;* in old French, *jonglère* or *jongléor ;* in modern French, *jongleur*. These musicians soon began to be also kept in the service of kings and princes, whence they received the name of *menestrels* or *minstrels* (Lat. *minister*, a servant). The profession was at this time an honorable one, and good endowments were devoted to the maintenance of minstrels; and when the art of the minstrel ceased to be exclusively employed for the entertainment of courts, those of this profession formed a separate guild in some towns, as in Paris. But it gradually lost respectability. Rope-dancers, and all who sought to gratify the populace by sleight of hand or feats of agility, were designated by the name *jongleur*, until it became restricted to its present acceptation.—The ancient Romans had their conjurers or wonder-workers (*præstigiatores*), their throwers of knives (*ventilatores*), and their players with balls and rings (*pilarii*). But the greatest proficients in everything of this kind are, and have for many ages been, the Hindus and Chinese.

JUGGLERS (*ante*). The Hindu jugglers have long been celebrated for the performance of feats which were quite inexplicable to the uninformed. Probably the most comprehensive exhibition of these feats in recent times occurred during the visit of Albert Edward, prince of Wales, to India in 1875–76, when the most expert Indian jugglers exhibited their skill before him. Both the Chinese and the Japanese are skilled jugglers, though with these people there is less of the absolutely mysterious, and more that is the result of agility and practice in their feats, than among the Hindus. The tricks of swallowing fire, expelling marvelous lengths of ribbon from the mouth, sword-swallowing, ball-catching, plate-spinning, and practice with fans are performed equally well by the jugglers of most of the oriental nations. The celebrated "basket" feat, and the trick of causing almost instantaneous vegetation, the seed being planted, and the tree growing to maturity, budding, blossoming, and coming to fruit under the eye of the spectator, are juggling efforts which are peculiar to the Hindus. The jugglers of civilization, such as Houdin, the fakir of Ava, professor Anderson, signor Blitz, Heller, Herrmann, and others, have gained their reputation mainly by skill in *legerdemain*, and by adroit concealment of the means and appliances used, either through the employment of confederates, or by machinery. The "mysterious disappearance," the "box trick," the "aerial suspension," and the "second sight" trick, are accomplished by such means. The term juggler originated in the name of the instrument performed upon by the *jongleur*, this being a sort of hurdy-gurdy. The performer accompanied troupes of wandering minstrels, and the better to add to his own attractiveness, acquainted himself with certain tricks, acrobatic exercises, and other amusing conceits. It occurred that these latter features became the most popular portion of the performance, and the distinct specialty arose. The value of science to the modern juggler and conjurer is unquestioned; yet the most extraordinary and altogether inexplicable tricks are performed with the least mechanism. Chemistry and optics have played a large part in modern magic, as has also automatic machinery; witness "Pepper's ghost," and the "Psycho" of Mr. Maskelyne in London. The various phenomena of spiritualism, animal magnetism, and psychology, though many of them akin in their nature to those produced by jugglery and *legerdemain*, are really not to be properly considered in this place. Such are the results produced by Mr. Home, Foster, and the Davenport brothers, including table-tipping and rapping, the *stigmata*, levitation, and the automatic performance of musical instruments.

JUGLANS AND JUGLANDACEÆ. See WALNUT.

JUGUR'THA, King of Numidia, son of Mastanabal, who was a natural son of Masinissa, was carefully educated along with Adherbal and Hiempsal, the sons of his uncle, Micipsa, who succeeded Masinissa on the throne. After Micipsa's death Jugurtha soon caused Hiempsal to be murdered (118 B.C.), and Adherbal fled to Rome. Jugurtha succeeded in bribing great part of the Roman senate, and obtained a decision in his

favor, freeing him from the charge of the murder of Hiempsal, and assigning him a larger share of the kingdom than was given to Adherbal (117 B.C). But Jugurtha soon invaded Adherbal's dominions; and, notwithstanding injunctions by the Romans to the contrary, besieged him in the town of Cirta (112 B.C.), and caused him and the Romans who were captured with him to be put to death with horrible tortures. Hereupon, war was declared against Jugurtha by the Roman people; but, by bribing the generals, Jugurtha contrived for years to baffle the Roman power. At last the consul, Q. Cæcilius Metellus, proving inaccessible to bribes, defeated him in 109 and 108 B.C., so that he was compelled to flee to the Mauritanian king, Bocchus. Marius, who succeeded Metellus in the command, carried on the war against Jugurtha and Bocchus, till at last Bocchus delivered up Jugurtha to the Romans, who exhibited him at Rome in the triumph of Marius (104 B.C.), and then threw him into prison to die of hunger. Jugurtha has obtained greater prominence in history than he deserves, on account of Sallust's history of the Roman campaigns against him.

JU'JUBE, *Zizyphus,* a genus of spiny and deciduous shrubs and small trees of the natural order *Rhamnaceæ.* The species are pretty numerous. The COMMON JUJUBE (*Z. vulgaris*) of the south of Europe, Syria, etc., is a low tree, which produces a fruit resembling an olive in shape and size, red, or sometimes yellow when ripe. The fruit is dried as a sweetmeat, and forms an article of commerce. *Syrup of jujubes* is used in coughs, fevers, &c,; but the *jujube paste* or *pâte de jujube,* of the shops of Britain is made of gum-arabic and sugar, without any of the dried jelly of this fruit. The jujube of India (*Z. jujuba*) is a similar small tree, with round or oblong fruit, sometimes of the size of a hen's egg.—A Chinese species of jujube (*Z. nitida*) has a very pleasant yellow fruit about an inch long; and other species not much inferior are found in Africa, South America, and other warm countries.—The LOTUS (*Z. Lotus*), a shrub two or three feet high, a native of Persia, the north of Africa, etc., produces in great abundance a fruit about as large as a sloe, and with a large stone, but having a sweet farinaceous pulp, which the natives of some parts of Africa make into cakes resembling gingerbread. A kind of wine is sometimes made from it.—*Z. Spina Christi,* another native of the countries near the Mediterranean, is sometimes said to be the plant from the branches of which our Savior's crown of thorns was made, and is therefore called CHRIST'S THORN and JEWS' THORN, names which, for the same reason, are also given to *Paliurus aculeatus.* The fruit is about the size of a sloe, oblong, and pleasantly acidulous.

JUJUY', a province of the Argentine Republic; 35,844 sq.m.; pop. '82, 66,000. It is bounded by Bolivia on the n. and w.; by the Gran Chaco on the e. and on the s. by Salta. An elevated plain comprises all the n.w. portion, which is a continuation of the great Bolivian table-land, terminating in a mountain chain, the peaks of which are covered with snow, and rise to the height of 14,000 feet. On the east side of the range the surface slopes gradually towards the Chaco plains, interspersed by a few inconsiderable mountains. This district is very fortunate in water supply, being fertilized by several rivers, the principal being the Rio Grande, which effects a junction with the Bermejo s. of Oran. The puna, or elevated plain, has two large lakes, Toro and Casabindo; the latter furnishes an immense quantity of salt; asphalt, gold, silver, iron, quicksilver, and petroleum are plentiful in the district; the vegetation is luxuriant, and it abounds in timber; rice, maize, and sugar are largely cultivated; woolen manufactures are carried on, and industries of every kind are productive. Every town in the province possesses a school, yet at the census of '69, out of the entire pop. of 40,379, only 4,309 could read, and but 3,376 could write.

JUJUY', a t. of the Argentine Confederation, South America, on a river and in a province of the same name, about 300 m. n.n.w. of Santiago. It is said to be a place of some trade, being on the main route from Salta across the mountains into Bolivia. Pop. about 7,000.

JUKES. The name (pseudonym) adopted by the prison association of the state of New York to signify a family whose history displayed an exceptional condition in its relation to crime, pauperism, and disease, illustrating heredity. The family indicated descended from a woman commonly described as "Margaret, the mother of criminals," and originated in the interior of the state of New York, in what would appear to have been a positive crime-center, from which the ramifications of this family line spread in all directions. The attention of the N. Y. prison association having been directed towards this remarkable case, a careful examination and analysis of the family record resulted in tracing it to the sixth generation, with definite conclusions as to the processes by which crime and pauperism are perpetuated, such as had never before been reached in any known instance. The facts in the case of the family under consideration showed that the aggregate number of descendants reached 1200 persons; of whom 709 were traced, and the incidents of their career tabulated. Of these, 280 received public charity and 76 were punished for crime, while a majority of all were offenders against virtue, and a large proportion diseased. An ingenious calculation sets forth a loss of a million and a quarter dollars to the commonwealth in 75 years through the mode of living and offenses of this family. In 1877 a report of this remarkable case was made to the prison association of N. Y. by R. L. Dugdale, which was published.

JUKES, ANDREW. See page 888.

JUKES, Joseph Beete, 1811–69, b. England; educated at Cambridge, and entered upon a course of practical investigation into geological science. He was geological surveyor of Newfoundland in 1839, and was appointed in 1842 naturalist of the surveying expedition of H. M. S. *Fly*, engaged in the examination of the e. coast of Australia. In 1846 he was employed in the geological survey of Great Britain, and contributed to the official report special memoirs on certain districts. He was director of the geological survey of Ireland in 1850, and afterwards professor of geology in the royal Dublin society and the royal college of Dublin. Prof. Jukes wrote the article "Geology" for the *Encyclopædia Britannica*, 8th ed., and several important works on the same subject.

JULALPUR', a t. of India, capital of the pergunnah of the same name, 100 m. s.w. of Lucknow, on the river Betwa. It is said to be a place of some importance, and to contain a pop. of 10,000. The country to the south is wild and sterile, being much cut up by ravines.

JU'LIA, the only child of the Roman emperor Augustus, was his daughter by his second wife, Scribonia, and was b. 39 B.C. She was only a few days old when her mother was divorced. She was educated with great strictness; was distinguished for her beauty, talents, accomplishments, and agreeable manners; she was married at a very early age, 25 B.C., to her cousin, Marcus Claudius Marcellus, the sister's son of Augustus. After his death she was again married, when little more than 17 years of age, to Marcus Vipsanius Agrippa, to whom she bore three sons and two daughters. He dying, 12 B.C., Julia was given in marriage, 11 B.C., to Tiberius, his mother, Livia, the stepmother of Julia, persuading Augustus to this, in order to secure the succession of Tiberius to the throne. The marriage was an unhappy one, and the conduct of Julia far from irreproachable; but Livia's hatred induced her to make exaggerated accusations to Augustus, and she so wrought upon his mind that he astonished all Rome by suddenly declaring, 2 B.C., that his daughter had so far forgotten herself as to be guilty of the most shameless adulteries, making even the forum the scene of her nightly vice. In this charge there seems to have been too much truth; but it is doubtful if there was any truth in the allegation further made that Julia and her paramours had entered into a conspiracy against the life of the emperor. Julia was banished to the isle of Pandataria (now Ventotiene), near Naples, and a number of persons of high rank were put to death or banished for their alleged participation in her guilt. From Pandataria, whither her mother, Scribonia, accompanied her, she was removed to Rhegium (now Reggio), where she was allowed by Tiberius to remain, destitute even of common comforts, till her death, 14 A.D. Her son Agrippa, was put to death by Tiberius in 14 A.D., shortly before the death of his mother. Her other sons died in early age. Her daughters survived her. The elder, Julia, died, 28 A.D., in the isle of Trimetus, on the coast of Apulia, whither she had been banished by Augustus 20 years before for adultery. The younger, the virtuous Agrippina (q.v.), died in 33 A.D., in Pandataria, to which she had been banished by Tiberius.

JU'LIAN, surnamed the *Apostate*, on account of his renunciation of Christianity; Roman Emperor 361–363 A.D., was b. at Constantinople Nov. 17, 331, and was the son of Julius Constantius, the brother of Constantine the great. His proper name was Flavius Claudius Julianus. He and his brother Gallus, who were too young to be dangerous, were spared when Constantius II., son of Constantine, massacred the rest of the imperial family. They were, however, removed to a castle in Cappadocia, where they were subjected to a system of rigorous espionage. Julian's life was very miserable, and the monkish education which he received produced no other result than a strong detestation of the religion professed by his tormentors. He was fond of literature and speculation, and he instinctively turned away from the rude asceticism, gloomy piety, and barbarous janglings of *Homoousians* and *Homoiousians*, to the cheerfulness, refinement, and pure intellectual meditativeness of the old Greek philosophers. Some of his teachers appear to have been (secretly) pagans, for the sudden change in the state religion brought about by Constantine had necessitated a great deal of hypocrisy, especially among scholars and government officials. At the age of 20 Julian was at heart a disbeliever in the divine origin of Christianity. On the death of his brother Gallus he was removed by Constantius to Milan, but was subsequently allowed to go to Athens, the home of Greek learning, where he gave himself up to philosophical pursuits, and enjoyed that cultivated society which he so highly relished. The emperor—though still jealous and suspicious—now conferred on him the title of Cæsar, and sent him to Gaul to protect it from the incursions of the Germans. Julian defeated the Alemanni at Strasburg (357 A.D.), and compelled the Franks to make peace. His internal administration in Gaul was mild and judicious. His popularity, in consequence, became very great, and when Constantius ordered him to set out for the east, Julian's soldiers rose in insurrection and proclaimed their favorite emperor, who most reluctantly acceded to their demands. The death of Constantius at Mopsocrene, in Cilicia, Nov. 3, 361 A.D., removed the only obstacle out of his way; and on Dec. 11 he made a triumphal entrance into Constantinople. He now publicly avowed himself a pagan, but surprised both Christians and pagans by his edict of toleration. Yet he was not absolutely impartial, for he chose most of his officers from the professed followers of the

old religion, and compelled the Christians to contribute to the restoration of the heathen temples. In 362 A.D. he made great preparations at Antioch, in the hope of bringing the war with the Persians to a successful termination; and in the following year advanced to Ctesiphon and across the Tigris, but want of provisions and treachery necessitated his retreat. He was followed and attacked by the enemy, who were repeatedly repulsed, but in one of the engagements he was mortally wounded by an arrow, and died June 26, 363.—Julian was both a great monarch and a great man. His rule, compared with that of many of the so-called Christian emperors, was just, liberal, and humane; and though only 32 years of age when he perished, he had composed a great number of orations, letters, satires, and even poems (collected and published by Spanheim in 1696). Among his lost works are his *Refutation of the Christian Religion*, and memoirs of his German campaigns and his diary. Julian appears to have been more attached to philosophy than religion, and to have more readily apprehended as truth what commended itsself to the intellect, than what spoke to the heart.—See Neander, *Ueber den Kaiser Julian;* Strauss, *Der Romantiker auf dem Throne der Cäsaren;* also the works of Mangold, Semisch, and Rode (1877) on Julian.

JULIAN or JULIANUS, CESARINI, 1398–1440; b. Rome; descendant of a noble Italian family, and one of the most illustrious in the church of Rome in the middle ages; educated at the university of Perugia, and appointed to a professorship at Padua. The dissensions and disorders in the Roman church in the 15th c. required men of great decision and energy, and pope Martin V., recognizing the eminent talents of the young Julian, summoned him to his aid, and appointed him apostolic prothonotary. As the companion and assistant of cardinal Bremda he was sent to Bohemia to bring back the Hussites to allegiance to the church. The mission failed, but for his great services he was made in 1426 cardinal of Sante Angelo. He was sent to represent the pope at a diet in Nuremburg and at the council of Constance at Basle. It was determined to extirpate the Hussites, and before the meeting of the council of Constance, Julian put himself at the head of an army of crusaders, whom he in vain endeavored to fire with religious zeal and patriotic devotion against the Hussites. Repairing to the council of Basle he was made its president, and exerted himself to win back the Hussites by peaceful measures. He relied with confidence on the influence of the council. Eugenius the pope was determined to abrogate its decision, but Julian was opposed to this, and defended the independence of the council and its superiority over the pontiff. But while seeking reform within the church, and contending for the supremacy of the council over the pope, he faithfully adhered to the pontificate, defending the cause of the pope against the attacks of many leaders of the church. Finding the council unwilling to meet his views, he changed his course and became a firm adherent of Eugenius. The council now found itself at variance with its able president, and the church threatened with a great schism. In 1437 a bull was issued ordering a synod at Ferrara to consider the question of uniting the eastern and western churches. Julian, resigning the presidency, left Basle and hastened to Ferrara. The sudden change of Julian from an opponent to a friend of Eugenius has led some to doubt his sincerity. But it can be easily accounted for by his earnest desire for the union of the eastern and western churches and the healing of schisms. He has, however, been charged with duplicity towards the prelates of the eastern church in the council of Florence, to which place the assembly was removed from Ferrara. For his services to the papacy Eugenius made him bishop of Frascati, and in 1443 appointed him legate to Hungary. He was killed in a war with the Saracens.

JULIAN, GEORGE WASHINGTON, b. Indiana, 1817, and though receiving only a common school education became a teacher, and afterwards studied law and was admitted to the bar. He entered politics, and became a member of the state legislature of Indiana in 1845, and a member of congress four years later. He adopted free-soil principles, and was on the presidential ticket headed by John P. Hale in 1852. He was one of the founders of the republican party, was again in congress from 1861 to 1869, and became an ardent advocate of female suffrage. In 1872 he joined the Greeley (liberal republican) movement, and from that point changed his politics, and is now known as an ardent democrat.

JULIAN CALENDAR. See CALENDAR.

JULIAN CROSS, or **CROSS OF ST. JULIAN**, a cross crosslet placed saltire-ways.

JULIAN EPOCH. See CHRONOLOGY.

JULIAN YEAR. See YEAR.

JÜ'LICH, or in the French form of the name, JULIERS, a t. of Rhenish Prussia, 16 m. n.e. from Aix-la-chapelle, on the Roer. Jülich is situated in a fertile plain, but surrounded by marshes, which make it very unhealthy. It is said to be of Roman origin, and was strongly fortified till 1860, when the fortifications were demolished. The principal branch of industry is the manufacture of leather. Pop. '80, 5,295.—Jülich was long the capital of an independent duchy; and Jülich and Berg (q.v.) were united as possessions of the same family. On the death of the duke of Jülich, in 1609, began a dispute as to the succession, which was not settled till 1666, when a decision was given in favor of the house of Pfalz-Neuburg—the elector of Brandenburg obtaining Cleves

and some of the other territories formerly united with Jülich and Berg. The Pfalz-Neuburg family becoming extinct in 1742, Jülich passed to the Pfalz-Salzbach branch, afterwards electors of Bavaria. By the peace of Luneville it was annexed to France as part of the dep. of Roer; and in 1814 was assigned to Prussia by the congress of Vienna.

JULIEN, STANISLAS-AIGNAN, the first Chinese scholar of his age in Europe, was b. at Orleans, in France, Sep. 21, 1799, and in 1823 became a pupil of Abel Rémusat, who had recently been appointed to deliver a course of lectures on Chinese. In less than a year, he had made himself master of the principal difficulties of the language, and actually executed (in Latin) a translation of the great Chinese philosopher, Mencius, which was published at the expense of the Asiatic society of Paris, and pronounced faultless. From that time, his labors were chiefly directed to the languages and literature of the far east. Ancient and modern Chinese, Mantchu, Sanskrit, the Mongolian tongues, were familiar to him, although, at the same time, he is said to have known almost all the European languages. His translations (into French) embrace the most important works in all departments of Chinese literature. He has given specimens of the Chinese drama in his *Hoei-lan-ki* (The Circle of Chalk, 1832) and his *Tchao-chi-koueul* (The Chinese Orphan, 1834); of Chinese romances, by his *White and Blue; or, the Two Snake Fairies* (1834), and several other pieces in *Salmigondis* and the *Constitutionnel.* Julien was also the first who succeeded in translating Chinese poetry well—the constant use of allegory and allusion to facts not known to Europeans rendering it nearly unintelligible. But more valuable still than those purely literary productions are his translations of the great works that enable us to understand the religion and philosophy of the Chinese, such as the *Book of Rewards and Punishments* (1835), in which are contained the doctrines of Tao-sse; the *Book of the Way and of Virtue* (1841) by Lao-tseu, written in the 6th c. B.C., and forming the oldest and most illustrious monument of Chinese philosophy; and above all, the history of the *Life and Travels of Hiouen-Tsang* (1852), a work of immense importance for the earlier history and geography of India and the knowledge of Buddhism. But not content with these brilliant labors, Julien sought to instruct us concerning the industry and arts of the Chinese, in a variety of treatises, of which we may mention his *Summary of the Principal Chinese Treatises upon the Culture of Mulberry Trees and Silk-worms* (1837), and his *Treatise on the Art of Manufacturing Porcelain* (1856). In 1869, he published the first part of the *Syntax of the Chinese Language.* On the death of Rémusat, he became his successor at the college de Fance, and in 1855 president of the college. He was also conservator of the Bibliothêque Impériale, and was specially charged with the oversight of the Chinese department. He died in Feb. 1873.

JULINDER DOOAB. See JULLUNDER, *ante.*

JU'LIUS, the name of three popes, of whom the second and third deserve to be noticed.—Julius II., originally cardinal Della Rovere, a nephew of Sixtus IV., was born at Albizzola, near Savona. He was vehemently opposed during his cardinalate to the designs of Alexander VI. for the aggrandizement of his family, and one of his earliest measures on his election to the pontificate, in 1503, was to resume possession of the duchy of the Romagna, which had been bestowed upon Cæsar Borgia. Julius was himself beyond all suspicion of nepotism or selfish designs of aggrandizement; but his public carreer during his pontificate was almost entirely devoted to political and military enterprises for the complete re-establishment of the papal sovereignty in its ancient territory—Bologna, Ferrara, etc.—and for the extinction of foreign domination and foreign influence in Italy. In pursuing his designs for the purpose of compelling from the republic of Venice the restitution of the papal provinces on the Adriatic, Julius not only entered into the league of Cambray with the emperor Maximilian and Louis XII. of France, but had recourse to spiritual arms, by placing the republic under the ban of the church; and on the submission of Venice, apprehending the ambitious designs of Louis, he withdrew from the league, and entered into an opposite alliance, the "holy league," to which Spain, England, and Switzerland were parties. Hence arose his bitter quarrel with Louis XII., in which the latter attempted, but ineffectually, to enlist the sympathies of the church against the pope. The council of Pisa which was convened under Louis's influence, was an utter failure; and the opposing council, fifth of the Lateran, assembled by Julius, but not brought to a close during his lifetime, completely frustrated the designs of Louis. It is alleged that, in his hatred of France, Julius was desirous of drawing even the Turks into the league; but this allegation is negatived by his entire career, one of the main features of which was a design for a holy war, in which he himself should take the command. As an ecclesiastical ruler Julius has little to recommend him in the eyes of churchmen. As a political sovereign he is described by Ranke as "a noble soul, full of lofty plans for the glory and weal of Italy;" and prof. Leo considers him, with all his defects, as one of the noblest characters of that age in Italy. He was a liberal and judicious patron of art, and a friend of the rising literature of the time. He died Feb. 22, 1513.—Julius III., a native of Monte San Savino, near Arezzo, was known before his elevation to the pontificate as cardinal del Monte. He was one of the four legates of the pope under whom the council of Trent was opened; and after his election to the papacy in 1550, he himself reopened (in 1551)

that council, which had been suspended for upwards of two years. He is connected with English history as having sent cardinal Pole to organize with Mary the reunion of the kingdom with Rome; but his general government of the church is marked by no very striking events, and his private character is sullied by the taint of nepotism. He died Mar. 23, 1555.

JULIUS I., d. Rome, 352; was chosen pope 337, and supported Athanasius in his controversy with the Arians, even to the extent of causing his approval by a council summoned in 342, while he addressed a letter in his defense to the church of Alexandria. The eastern bishops antagonized the pope as to this action, and not being able to come to an agreement with him, excommunicated him.

JULIUS, Nikolaus Heinrich, 1783–1862; b. Germany; studied and practiced medicine, but devoted himself to investigations of the management of the prisons of different countries. For this purpose he traveled in Europe and in the United States, and wrote and edited a number of works on prison reform, etc., including *Die Amerikanischen Verbesserungs systeme; Nordamerikas Sittliche Zustände;* and edited the *Jahrbuch der Straf und Besserungsanstalten;* and the *Magazin der Ausländischen Literatur der Gesammten Heilkunde.* He also made a German translation of Ticknor's *History of Spanish Literature.*

JULLIEN, Louis Georges, 1812–60; a French musician. He was an accomplished violinist at the age of 6 years, and at 18 was admitted to the Paris conservatoire to study under Cherubini. He directed promenade concerts in London for many years, and wrote an opera for Covent Garden theater, called *Pietro il Grande.* He visited the United States with a large orchestra in 1853, and gave popular concerts in the chief cities. The latter portion of his life was unfortunate, and he died in a charitable institution in great poverty. He was a clever composer of dance-music, and a skillful and magnetic orchestral leader.

JUL'LUNDER, a city of the Punjab, stands in the doab of the same name between the Sutlej and the Beas, in lat. 31° 21′ n., and long. 75° 31′ east. The soil of the neighborhood is very productive; and the place, though fallen from its former greatness, has still (1881) 52,119 inhabitants.—Jullunder, also spelt *Jallandar*, gives name to an administrative *district* of 1333 sq.m. area (pop. 794,764), and to a division of 12,181 sq.m. area (pop. 2,477,536).

JULUS, or Iulus, a genus of *myriapoda* (q.v.), of the order *chilognatha.* The whole of this order was included in the Linnæan genus *julus,* and it is still the family *julidæ* of many naturalists. The genus julus, as now restricted, contains many species, some of which are British. They are sometimes called Snake Millipedes and Gally-worms. They resemble centipedes in form; but their feet are more numerous—some having 120 pair—and are so weak that the animal seems to glide along on its belly, the feet moving like a wavy fringe on each side. The body is nearly cylindrical, not flattened. On any alarm the animal rolls itself up in a coil. The *juli* have no poison-fangs, like centipedes. They inhabit moist and dark places, and feed chiefly on decaying vegetable substances, sometimes also on decaying animal substances.

JULY, the 7th month of the year in our calendar, 5th in the Roman calendar, where it was called Quintilis (the 5th). Originally it contained 36 days, but was reduced by Romulus to 31, by Numa to 30, but was restored to 31 days by Julius Cæsar, in honor of whom it was named *July* (Lat. *Julius*), on account of his birth having happened on the 12th of this month. It was called *Maed-monath,* or mead-month, and *litha-aeftera,* or after-mild-month, by the Anglo-Saxons.

JUMBUSER, a t. of British India, presidency of Bombay, is situated in the district of Broach, and 22 m. n.w. of the town of that name. Pop. 15,000, who are principally employed in the cotton, grain, and coarse cloth trade.

JUMIL'LAH, a handsome t. of Spain, in the modern province of Murcia, is situated in a delightful valley 35 m. n. of the city of that name. Pop. 7,400, who manufacture fire-arms, earthenware, and tiles.

JUM'NA, the principal feeder of the Ganges, is perhaps the only Indian river of the first-class which has its course wholly in Hindustan—the Indus, Sutlej, Ganges, and Brahmaputra all rising in Thibet. Its source, at a height of 10,849 ft. above the sea, is in lat. 31° n. and long. 78° 32′ e., at the s.w. base of the Jumnotri peaks; and, after flowing 875 m. chiefly in a s.e. direction, it joins the Ganges at Allahabad. After its first 100 m., during which it receives many affluents, of which the Touse is the largest, it enters the plain of Hindustan in lat. 30° 20′ n. and long. 77° 38′ e., having still an altitude of 1276 ft. above the sea. Below this point it is joined by many considerable streams: the Chumbul, the Sind, the Betwa, and the Cane on the right; and the Hindon, the Seengoor, and the Rind on the left. All the way downwards the Jumna is generally shallow, and, excepting as to descending rafts, unfit for navigation. By artificial means, however, its waters have been rendered doubly available both for commerce and for agriculture. From either bank a canal has been drawn at once for the use of inland craft and for the purposes of irrigation. The one on the right side, begun in 1356, leaves the main channel a short distance below the point of its emerging from the moun-

tains; while the one on the left side, commenced in 1824, takes its departure a little further down, near the village of Fyzabad. Both of them rejoin the parent stream at Delhi. Historically and politically the Jumna occupies a more prominent position than the Ganges itself above their junction. The former was necessarily the first to cross the path of every invader from the n.w.; and hence on it were built both Agra and Delhi, the two capitals of the Mussulman conquerors of India.

JUMNO'TRI, hot springs near the source of the Jumna, in lat. 30° 59′ n. and long. 78° 35′ e., 10,849 ft. above the sea. Their temperature is 104.7° F., nearly that of boiling water at their elevation. They are overhung by three connected mountains known as the Jumnotri peaks, whose altitudes respectively are 21,155, 20,916, and 20,122 feet.

JUMPERS, a name given to those who believed that religious worship should be accompanied with leaping and dancing and other bodily agitations. They are said to have originated in the congregations of Whitefield in the western part of Wales about 1760, and to have had followers among the Quakers and Irvingites. They are called also Barkers, because they accompany the leaping and dancing with groans and incoherent utterance. Discountenanced in England they emigrated to the United States, where, in Pennsylvania, Ohio, and the extreme west they have some adherents. Evans, in his *Sketch of the Denominations of the Christian World*, gives an account of their exercises, which he witnessed.

JUMPING HARE, *Pedetes* or *helamys capensis*, a south African rodent, *spring haas* of the Dutch colonists, generally placed near the jerboas in systems of zoology, but very considerably differing from them. The head much resembles that of a hare, although the ears are shorter; the form of the body is also like that of a hare, but the hind-legs are very long and strong, like those of a kangaroo, and the toes both of fore and hind feet are armed with great claws. Its powers of leaping are extraordinary; it clears 20 or 30 ft. at a bound. Night is its time of activity, and it makes mischievous inroads on fields and gardens. Its flesh is eaten.

JUNAGUR, a t. of Hindustan, 235 m. n.w. of Bombay, in the province of Gujerat, possessed by an independent native chief, now one of the British allies. In 1808 he and other chiefs agreed with the Bombay government to oppose piracy, and allow free commerce with British vessels on the payment of the stipulated duties. This chief, styled the nawaub of Junagur, has a territory containing a population of 284,300.

JUN'CEÆ, or JUNCA'CEÆ, a natural order of endogenous plants, herbaceous, generally perennial, with creeping root-stock; narrow, often fistular leaves; regular flowers; the perianth 6-partite; the stamens six; the fruit a 3-valved capsule. This order is nearly allied to *liliaceæ*, notwithstanding very great difference of aspect, for rushes (*juncus*) are the best-known examples of it. The species, about 200 in number, are mostly natives of cold and temperate climates.

JUNCTION CITY, capital of Davis co., Kansas, 71 m. w. of Topeka, at the confluence of Smoky Hill and Republican rivers, and on the Kansas Pacific railroad at its junction with the Junction City and Fort Kearney railroad, and the n.w. terminus of the Neosho division of the Missouri, Kansas and Texas railroad; pop. 2,684. It has an active trade with the surrounding country. It contains 6 churches, a court-house, hotels, a public high school, a savings bank, a United States land office, weekly newspapers, flour-mills, factories for carriages and farming implements.

JUNE, the sixth month of the year in our calendar, but the fourth among the Romans. It consisted originally of 26 days, to which four were added by Romulus, one taken away by Numa, and the month again lengthened to 30 days by Julius Cæsar, since whose time no variation has taken place. The Anglo-Saxons called this month *sear-monath*, or dry-month, and *midsumer-monath*.

JUNEAU, a co. of southern central Wisconsin, bounded e. by the Wisconsin river; watered by the Lemonweir, Yellow, and Baraboo rivers; intersected by the Milwaukee and St. Paul railroad; 820 sq.m.; pop. '80, 15,582. The surface is uneven and extensively covered with forests of pine, sugar-maple, and other trees. The soil is fertile. The staple products are wheat, maize, hay, hops, and lumber. Co. seat, Manston.

JUNE BERRY, *Amelanchier Canadensis*, a shrub, indigenous to Canada and the United States, which is largely cultivated for its fruit, a berry of rich purple color, sweet in flavor, and of the size of a currant. The characteristics of the shrub are similar to those of the apple and pear, but it is found in many varieties, which offer considerable differences. It varies in height from 3 or 4 to 30 ft., and bears different names in different parts of the country, being known as the shad-bush, the service-berry, and the mountain whortleberry.

It is cultivated in ornamental gardening, as it bears a white flower in abundance.

JUNG, JOACHIM, 1587–1657, b. Germany; a distinguished naturalist and writer on scientific subjects. He was professor of mathematics at Giesen and Rostock, practicing also as a physician. His writings were voluminous, but a number of them were destroyed by fire. A collection was made of those extant by Albrecht in 1747, and published as *Opuscula Physica Botanica*. While he studied and wrote upon philosophy, mathematics, mineralogy, and invertebrates, he was specially noted for his knowledge and ability as a

botanist, and is said to have antedated Linnæus in devising the binomial nomenclature for plants. As a philosopher he ranked among the first of his age, being rated by Leibnitz with Copernicus, Galileo, and Descartes.

JUNG, Johann Heinrich, generally called Jung Stilling, an author, the events of whose life and whose gifts of imagination render him worthy of notice, although at one time his merits were greatly overestimated. He was born of poor parents at Imgrund, in Nassau, Dec. 12, 1740, and after trying various occupations became a student of medicine at Strasburg, where he lived in intimacy with Goethe, who conceived a great liking for him, on account of his simple, pure, affectionate nature; settled as a medical practitioner at Elberfeld, and distinguished himself as an operator for cataract. He is said to have improved the eyesight of more than 2,000 persons. Jung subsequently held professorships at Marburg and Heidelberg. He died at Carlsruhe, April 2, 1817. His first publication was an autobiography, *H. Stilling's Jugend, Jünglingsjahre, Wanderschaft, Lehrjahre, Häusliches Leben und Alter* (3 vols., Berlin, 1777–78), which attracted much attention, and was followed by other publications from time to time, continuing the history of the author's career. In religion, Jung represents a class by no means uncommon in Germany—viz., the *pietistic rationalists*, men who put little stress upon the (written) word of God, but are full of veneration (often degenerating, however, into a mere sentimental enthusiasm) for the spiritual truths of Christianity. Jung's collected works were published (1838) at Stuttgart in 14 volumes.

JUNG-BUNZLAU, or Bunzlau, a t. of Bohemia, 32 m. n.e. of Prague, on the Iser and on a railroad; pop. '69, 8,695. It is built near the site of an old town founded by Boleslas I., and destroyed in the Hussite wars. It has 16 churches, a monastery, a gymnasium, an old castle, built, it is said, in the 10th c. by Boleslas II., and now used for barracks: also manufactures of cotton and woolen fabrics and leather.

JUNGER, Ægidius, d.d. See page 888.

JUNGERMAN'NIA, a Linnæan genus of cryptogamous plants, containing a great number of species, which some modern botanists have divided into many genera, and some have even formed into an order, *Jungermanniaceæ*, although it is more generally regarded as constituting a sub-order of *hepaticæ* (q.v.). The distinctive characters of the sub-order are that the *spore-cases* open by four valves, and that the *spores* are mixed with *elaters*. The species much resemble mosses in appearance. Many are natives of Britain, some of them very common in moist places. The tropical species are very numerous, and some of them are to be found even on the young shoots and leaves of plants.

JUNG'FRAU (the Maiden), one of the highest mountains of the Bernese Alps, rises on the boundary-line between the cantons of Bern and Valais, and attains a height of 13,720 feet. It received its name either from the unsullied purity and dazzling brightness of the snow by which it is covered, or from the fact that no traveler had ever reached its highest point. Its summit was reached first by two Swiss gentlemen, named Meyer, in 1811, and since by Agassiz, prof. Forbes, and many others.

JUNGHUHN, Franz Wilhelm, 1812–64; commenced his professional career as a surgeon in the Prussian army; afterwards joined the French forces in Algeria, and finally settled in one of the Dutch colonies in Java. In the latter country he made valuable researches into the geological, geographical, and botanical resources of the land, and his published works upon the subject are highly prized. He visited Europe in 1849, but returned to Batavia, where he died. His principal works are: *Java; seine Gestalt, Pflanzendecke und innere Bauart; Die Battalonder in Sumatra; Landschafts-ansichten von Java;* and an unfinished description of the plants and fossils of Java, *Plantæ Junghuhnianæ.*

JUNGLE, a term now fully adopted into the English language, but of Bengalese origin, and employed to designate those thickets of trees, shrubs, and reeds which abound in many parts of India, and particularly in the unhealthy tract called Terai or Tarayani, along the southern base of the Himalaya, and in the Sunderbunds (q.v.) at the mouth of the Ganges. The jungles are often impassable, from the thick growth of underwood, tall grasses, and climbing plants. The soil is generally swampy, and fever and other diseases abound. Tigers and other beasts of prey, elephants, boars, deer, and other quadrupeds are found in great numbers in these thickets, with gigantic snakes and multitudes of monkeys. The jungle flora and fauna are very peculiar, and the moisture and heat carry a tropical vegetation beyond its usual limits northward to the lower valleys of the Himalaya.

JUNGLE-FOWL, the name given by the Australian colonists to a bird (*megapodius tumulus*), which has also been called the Megapode, totally different from the jungle-fowl of India. See Fowl. It belongs to the family *megapodiæ*. All the species are large birds, with short wings and tail, and of slow, heavy flight. They are remarkable for the thickness of their legs (*tarsi*), and their long and thick toes; and for their habit of heaping up mounds of earth, decayed leaves, etc., in which they lay their eggs, which are hatched by the heat produced by fermentation. The Australian jungle-fowl makes heaps sometimes 15 ft. high, and 60 ft. in circumference at the base, under the shade of thick trees or shrubs, where the heat of the sun may not evaporate the moisture. In these heaps it makes holes of several feet in depth, in which to deposit its eggs. How the young birds emerge is not yet known, nor if they are assisted by the parent birds.

The mounds of the jungle-fowl were at first supposed to be sepulchral tumuli. The jungle-fowl is mostly of a brownish color. Its size is rather less than that of the common domestic fowl. The propensity to heap up earth is very early manifested by young birds.

JUNGLY GAU, *Bos Sylhetanus,* a species of ox, inhabiting Sylhet and other mountainous parts of the n.e. of India. It is nearly allied to the gayal (q.v.) and to the common ox, and has more the appearance of some of the European domesticated breeds of ox than any of the other wild oxen of Asia. The jungly gau, although in a wild state it is only to be seen in places remote from the habitations of man, and flees from the encroachments of cultivation, is easily domesticated. Its milk is very abundant, and of excellent quality.

JUNGMAN, Jozef Jakob, 1773–1847; b. Bohemia; educated at the university of Prague; was teacher at the gymnasium of Leitsmeritz, 1799–1815; professor at Prague, 1815–45. He published in 1825 a history of the Bohemian language and literature, and in 1835 a complete Bohemian-German dictionary.

JUNIATA, a co. of s. central Pennsylvania, watered by the Juniata, and traversed by the Pennsylvania railroad and canal; 360 sq.m.; pop. '80, 18,227. The surface is mountainous, a large part covered with forests, and the valleys are very fertile. The staples are wheat, oats, maize, potatoes, and hay. The county contains slate, sandstone, and limestone. The chief articles of manufacture are farming implements and carriages, and there are several tanneries, flour and saw-mills. Co. seat, Mifflintown.

JUNIATA RIVER, in central Pennsylvania; rising near Altoona. It is formed by the Franktown branch and the Little Juniata, which unite at Petersburg. It runs s.e. through Huntingdon co. and n.e. through Mifflin co., and enters the Susquehanna river at Duncannon, 14 m. above Harrisburg. Including the Franktown branch it is 150 m. long, and has through nearly its whole course some of the most grand and picturesque scenery of the state. It breaks through or crosses several mountain-ridges, and waters several valleys. The Pennsylvania railroad follows its windings from its source to its mouth, crossing it several times.

JU'NIPER, *Juniperus,* a genus of trees and shrubs of the natural order *coniferæ,* suborder *cupressineæ,* having unisexual flowers, the male and female generally on separate plants, and the fruit a fleshy *galbule* (popularly a *berry*), containing three small nuts. The species are all evergreen, and have small, narrow, rigid leaves, which are opposite, or in whorls of three or four, or imbricated in four rows. They are natives chiefly of temperate and cold regions, and are found in Europe, Asia, Africa, and America.—The Common Juniper (*J. communis*) is found in all parts of Europe and the n. of Asia, and in the northern parts of North America. Only in favorable circumstances does it become a tree of 15, 20, or at most 30 ft. in height, and in general it is only a shrub from 2 to 6 ft. high. The fruit takes two years to ripen; it is round, of a bluish-black color, with a whitish bloom; it is of the size of a small currant, and is produced in great abundance. The little nuts or stones of the fruit have on the shell three glands, which abound, especially before ripening, in an essential oil—*oil of juniper*—present also in the wood, particularly in the young wood. The wood is yellowish red, brownish in the heart, hard, and fragrant. When of sufficient size it is much valued by turners. It is also used for veneering. The dry twigs, roots, and berries are used for fumigation. The berries have a strong and peculiar flavor. They are much used for flavoring gin, which derives its name from them (see Gin). They also enter into several medicinal preparations, being stimulant, sudorific, and diuretic. The bark of juniper may be made into ropes, and in some parts of the highlands of Scotland the roots are woven into the coarse baskets which are used for potatoes, peats, etc.—Oil of juniper is lighter than water; specific gravity, 0.839. It is limpid and nearly colorless. It is obtained by distilling the unripe fruit, or the twigs, with water. The medicinal properties of juniper depend on it; six drops are a dose.—Spanish Juniper (*J. oxycedrus*) grows in arid situations in the countries around the Mediterranean sea. Its fruit is about the size of a hazel-nut, and from its fruit and wood is procured an essential oil of disagreeable odor, called *huile de cade* (q.v.), which is used in veterinary practice, particularly as a cure for scab in sheep.—Virginian Juniper (*J. Virginiana*), the Red Cedar of North America, is an evergreen tree, often 30 to 50 ft. high, of conical form, with horizontal branches and very small leaves; a native of North America, from lake Champlain to the gulf of Mexico. It grows in sandy or rocky places. It is often planted in pleasure-grounds in Europe, and succeeds well in Britain. The berries are small and bright blue. The heart-wood is of a beautiful red color, and is valued by turners, coopers, etc. It is imported into England for making pencils. There are often found on the branches fungous excrescences called *cedar apples,* which have been recommended as a vermifuge.—The Bermudas Cedar (*J. Bermudiana*) is a native of the Bermudas, a lofty tree, with very fragrant reddish-brown wood, which is used for furniture, pencil-making, etc., and also for lining cabinets, its flavor preventing the attacks of moths and other insects.—The Himalaya mountains produce several species of juniper, trees of considerable size, beautiful appearance, and valuable wood. The only species of juniper which is a native of Britain is the common juniper, and it is found chiefly in the more mountainous parts.—The Swedish Juniper of our shrubberies is merely a variety of the common juniper.

JUNIUS, Franciscus (François du Jon), 1545–1602; b. Bourges, France; educated for the legal profession, but, becoming interested in the questions of the reformation, devoted himself to the study of theology, and embraced the doctrines of Luther. He was for some time pastor of the Walloon church in Antwerp, and took a leading part among the reformers of the Dutch church, but was driven from his position and forced to fly to Germany. He was subsequently engaged with Tremellius in a Latin version of the Scriptures, which is still highly prized by commentators, and which has been reprinted many times.

JUNIUS, Franciscus, 1589–1677; b. Heidelberg; studied the principles of military engineering, and for a while was in the army; retiring from his profession in 1609 he devoted the remainder of his life to study. He visited England in 1620; was appointed librarian to the earl of Arundel, and held that office for thirty years, during which time he studied the Teutonic languages. His greatest work was his *Glossarium Gothicum*, in five languages, the English portion of which has been issued separately as *Etymologicum Anglicanum;* he also wrote *De Pictura Veterum*, with an English translation by himself, and published an edition of the *Gothic Gospels of Ulfilas*, with a commentary. He visited Germany, 1650. and died in the house of his nephew, Isaac Vossius, at Leyden, leaving his valuable MSS. to the Bodleian library, Oxford.

JU'NIUS, Letters of, a famous series of political letters signed "Junius," which appeared in a London newspaper, *The Public Advertiser*, during the last year of the administration of the duke of Grafton and the first two years of that of lord North. They were 44 in number; besides which are to be reckoned as proceeding from the same pen 15 signed Philo-Junius, 62 business-letters (mostly very short) addressed to his publisher, Woodfall, and 10 to Wilkes (privately); and in addition, 113 letters under various signatures. The first of the letters of Junius, published Jan. 21, 1769, treats of the "State of the Nation," and may be said to strike the key-note of all the subsequent correspondence. In it the author singles out several leading members of the ministry, and boldly denounces their inefficiency; and the last of the letters, dated Jan. 21, 1772, closes somewhat suddenly the long indictment against ministers in the same spirit in which it had begun. No sooner did the first Junius appear than the court-party took the alarm. An invisible and dreaded censor was evidently moving among them—one who, though as yet the days of parliamentary reports were still far off, seemed cognizant of all the proceedings of both houses, who not only knew intimately the public career of ministers, but was fully informed regarding the follies and the crimes of their private character. Sir W. Draper, who entered into controversy with this unknown adversary, was in the end overmastered, and reduced to mere humble complaint and confession. The duke of Bedford, lord Mansfield, and chief of all, the duke of Grafton, writhed beneath his lash—the last of these being more indebted for immortality to the splendid sarcasm of Junius than to any measure which it was his fortune to introduce. It cannot, however, be denied that the hatreds of Junius, though springing for the most part from his detestation of injustice, and his contempt for incapacity, were increased and imbittered by party spirit and personal dislike. The style of these letters, though perhaps occasionally somewhat stiff and formal, is of the very highest class. Occasionally rising to the loftiest eloquence, it is always remarkable for closeness of argument, felicity of illustration and allusion, and brilliant epigram. Whoever Junius was, his life depended upon his preserving his *nom de plume.* He had made too many enemies to be safe in acknowledging himself. From the day of the publication of his first letter, however, conjecture has been busy framing theories of the authorship. Burke, lord Shelburn, col. Barré, lord George Sackville, Wilkes, Horne Tooke, Thomas lord Lyttleton, among others, were supposed in turn to be Junius; but the general opinion now is that sir Philip Francis (q.v.) was the author of these letters. The Franciscan theory is supported by a weight of evidence, which, although entirely circumstantial, is sufficient, Macaulay thinks, "to support a verdict in a civil, nay, in a criminal proceeding." The handwriting of Junius is the handwriting of Francis slightly disguised. Junius, as is evident from his letters, knew the forms of the secretary of state's office, was intimately acquainted with the business of the war office, attended the house of commons in 1770, and took notes of speeches, especially of those of the earl of Chatham; denounced the promotion of Mr. Chamier in the war office as unjust to *Mr. Francis*, and was bound by some strong tie to the first lord Holland. All these circumstances in the position of Junius correspond exactly with the history of Francis. Merivale's *Memoir of Sir Philip Francis* (1867) contains much new evidence; and experts having compared what was known to be the handwriting of Francis *disguised* with that of Junius, have pronounced them identical. See Chabot and Twisleton's *Handwriting of Junius Professionally Investigated* (1871); also *Junius, by Woodfall* (1850); and Macaulay's *Essays* (Warren Hastings).

JUNK, a Chinese vessel, often of large dimensions. It has a high forecastle and poop- and ordinarily three masts. Junks, although clumsy vessels, incapable of much seaman, ship or speed, have proved themselves seaworthy on voyages extending even to America and Europe. The junk of Japan is considerably superior to that in use in China.

Junk, in the British navy, is a familiar term for the salt meat supplied to vessels for long voyages—the name being probably derived from the fact that it becomes as hard and tough as old rope, pieces of which are officially styled *junk.*

JUNKIN, GEORGE, D.D., LL.D., 1790–1868; b. Penn.; graduated at Jefferson college, Penn., and was for many years pastor of churches at Milton and McEwensville, Penn.; was successively president of Lafayette college, Miami university, and Washington college, Va. (now Washington and Lee university), which last position he relinquished at the beginning of the rebellion on account of his loyalty to his country. His vigor and efficiency were shown in his work as founder and first president of Lafayette college (q.v.), supplying the money for salaries and current expenses for nine years. He was a prominent adherent of what was termed "Old School" theology; and, besides his volumes on doctrinal and biblical subjects, he wrote many articles for papers and magazines.

JUNKSEYLON', or SALANG', an island in the bay of Bengal, lies in lat. 7° 46′ n. and long. 98° 18′ e., near the w. coast of the peninsula of Malacca. It belongs to Siam, and trades chiefly with the British settlements of Malacca, Penang, and Singapore. It yields tin, edible birds'-nests, and Japan wood.

JU'NO AND HE'RA, the Roman and Greek names of the queen of heaven and wife of the supreme divinity. The two conceptions have unfortunately been confounded, and hence their essential dissimilarity has been lost sight of—a dissimilarity, it may be remarked, as great as that which existed between the Roman and Greek character. We shall endeavor to distinguish between the two conceptions.

HERA (meaning "mistress"), the Greek goddess, was the daughter of Kronos and Rhea. She was the sister of Zeus, and afterwards became his wife. Her jealousy is proverbial, and was unfortunately too well founded, for Zeus was the reverse of a faithful husband. In the Homeric poems she appears, on the whole, as an obstinate, quarrelsome shrew, whose temper is a source of frequent discord between herself and her lord, whom, however, she greatly fears. She is represented as often spitefully favoring persons who were the objects of the displeasure of Zeus, and has to be punished for her disagreeable ways. Zeus scolds and even beats her; and on one occasion we read of his having tied her hands and hung her up in the clouds. But she is, nevertheless, a female of majestic beauty, the grandest of the Olympian dames. As the only wedded goddess in the Greek mythology she naturally presided over marriage and at the birth of children. She rode in a chariot drawn by two horses; and in her famous temple at Mt. Eubœa her statue, made of gold and ivory, bore a crown, symbolic of her queenly dignity. Her favorite residences were Argos, Sparta, and Mycenæ; but she had sanctuaries in many parts of Greece. The Greek artists loved to represent her as a majestic woman of middle age, possessing a maternal dignity of mien, with beautiful forehead, large eyes, and venerable expression. Homer repeatedly calls her "the venerable, ox-eyed Hera."

JUNO (the name is from the same root as Jupiter), the Roman goddess, was the queen of heaven, and, under the name of *Regina*, was worshiped in Italy at an early period. She bore the same relation to women that Jupiter did to men. Like the Greek Hera she took a special interest in marriage, whence her name of *Juga* or *Jugalis* (the yoke-maker); but she was also a kind of female providence, protecting the sex from the cradle to the grave. Her epithets, *Virginalis* (the goddess "of virgins"), and *Matrona* ("of mothers"), indicate this. It is a very significant feature of the Roman character that Juno was also believed to be the guardian of the national finances, watching over her people like a thrifty mother and housewife. A temple, containing the mint, was erected to her on the Capitoline as Juno *Moneta* (the money-coiner). She was besides the goddess of chastity, and prostitutes were forbidden to touch her altars. She had a multitude of other surnames, which we cannot afford space to enumerate. Her great festival was called the *matronalia*, and was celebrated Mar. 1. Her month (June) was considered the most propitious for fruitful marriages; and even yet, after eighteen centuries of Christianity, this old Roman faith lingers superstitiously in the popular mind.

JUNOT, ANDOCHE, Duke of Abrantes, and Marshal of France, was b. Oct. 22, 1771, at Bussy-le-Grand, in Côte-d'Or, entered the army as a volunteer in 1792, and distinguished himself in the early wars of the republic. In 1798 he followed Napoleon to Egypt, was there created gen. of brigade, and particularly distinguished himself at Nazareth, where, at the head of 300 cavalry, he put to flight 10,000 Turks, after a conflict of fourteen hours' duration. In 1807 he was appointed to the command of the army of Portugal. His army, after undergoing dreadful privations, reached Lisbon, and Junot, with the greatest expedition, made himself master of all the strong places in the kingdom, and reorganized his army. For his brilliant conduct at this time he was created duke of Abrantes, and appointed governor of Portugal; but being defeated by Wellington at Vimieira he concluded a convention at Cintra, returned to France, and subsequently served in Germany, Spain, Portugal, and Russia. In 1812 he was disgraced by Napoleon for a supposed want of energy, and sent to govern Illyria. This, along with other causes, produced mental derangement. He was taken to his father's house at Montbard, near Dijon, and two hours after his arrival precipitated himself from a window (July 22, 1813), and fractured his thigh-bone. Amputation was performed, but Junot frantically tore off the bandages, and died some days afterwards.—His wife, LAURE PERRON, the celebrated duchess of Abrantes, has gained a reputation in the literary world by her *Mémoires ou Souvenirs Historiques sur Napoléon, la Révolution, le*

Directoire, le Consulat, l'Empire, et la Restauration (Paris, 1831–35), and by several minor works.

JUNOT, Laure, Duchess of Abrantes, 1784–1838; b. France, of a family named Permon; married gen. Junot in 1800. She was a leader among the beautiful and witty women of the court of Napoleon I., her *salon* being frequented by the most prominent personages in political and social life in Paris. After the fall of Napoleon she devoted herself to historical writing, and published successively *Mémoires sur Napoléon; Mémoires sur la Restauration;* and *Souvenirs d'une Ambassade en Portugal.* Despite the interest created by these works their author fell into misfortune, and died in a charitable institution in Paris. Her life was notable, however, for the boundless extravagance of her habits, and to this fact must be attributed mainly its unfortunate conclusion.

JUNTA, i. e., an association, the name given in Spain to a body of persons combined for any political or civil object. The term was formerly applied more exclusively to assemblies of representatives of the people meeting without authority of the sovereign, but has been extended to those of the most strictly legal character.

JUPATI PALM, *Raphia tædigera,* a palm which grows on rich alluvial, tide-flooded lands near the mouth of the Amazon. The stem is seldom more than 6 or 8 ft. high; but the leaves are often 50 or 60 ft. long, rise vertically from the summit of the stem, and bend out on every side in graceful curves, forming a magnificent plume. The leaves are perhaps the largest in the vegetable kingdom; they are pinnate, the leaflets about 4 ft. long. The leaf-stalks, which are often 12 or 15 ft. long below the first leaflets, and 4 or 5 in. in diameter, perfectly straight and cylindrical, are almost like birds' quills in strength and lightness; when dried, of a soft substance, with a thin, hard, glossy outer covering. They are used for various purposes, as for laths, window-blinds, etc. The interior part is soft enough to be used instead of a cork.

JU'PITER, or Juppiter, in Roman mythology was the greatest of the gods. The name is a modification of *Diovis pater,* or *Diespiter* (*Diovis* or *Dies* = *divum,* heaven), i.e., the Father of Heaven, or the Heavenly Father. As such, Jupiter had all power over the phenomena of the skies; hence his numerous epithets, such as *pluvius* (the rain-giver), *tonans* (the thunderer), *fulminator* (the lightening-hurler), *serenator* (the weather-clearer. But he possessed still higher and diviner attributes. The future was spread out clearly before his all-seeing eye; the destinies of men were in his hands, and events were but the expression of his omnipotent will. But he was not careless of mankind. He revealed himself in a variety of ways to them, and taught men to interpret these mystic and symbolic revelations. Wonderful appearances in the sky or unwonted circumstances happening on the earth were the *media* of his communications; hence his surname *Prodigialis* (the sender of prodigies). As the national god of the Roman people, he went with them into battle (like the Jehovah of the Hebrews), fought for them, procured them victory, and, generally speaking, was their protector at home and abroad. This conception of Jupiter is shown in such names as *imperator* (the ruler), *victor* (the conqueror), *stator* (the stayer or stander-by). The strong sense of morality which marked the old Romans also found its expression in their view of the character of the best aud greatest (*optimus maximus*) of their gods. Jupiter was the guardian of law, justice, and virtue; oaths and all solemn engagements were made as to him ("in the sight of God," as we say). He had temples erected to him at Rome under all his different names; but the principal one was that on the capitol, whence he had the title of *Capitolinus,* and where, with beautiful significance, the statues of *Fides* (Faithfulness) and *Victoria* (Victory) were placed beside his own. When consuls or other magistrates entered on the duties of their office, or when the army was about to open a campaign, or a general returned victorious from war, sacrifices were solemnly offered to Jupiter, and his favor invoked. When the Romans began to know the religion and literature of Greece, they foolishly sought to identify their own noble, majestic, and gravely upright Jupiter with the slippery, lustful, and immoral *Zeus* of the Greeks. Hence have originated much confusion and misconception. See Zeus.

JUPITER, is far the largest planet in our solar system, having a mass in excess of all the other members by nearly three-fifths. Its orbit is about five and a half times as far from the sun as that of the earth, or at a mean distance of 475,692,000 m., and its eccentricity is considerable, the planet's greatest and least distances from the solar center being 498,639,000 and 452,475,000 m. respectively. The planet's mean distance from the earth, when in opposition, is about 361,000,000 m., and it moves around the sun in 11 of our years and $314\frac{92}{100}$ days, so that the interval between its returns to opposition has a mean value of 398,867 days, and its orbit is inclined to the ecliptic about 1° 18′ 40.3″. The mean diameter is about 85,000 m., with a polar compression of about $\frac{1}{16}$, according to measurements by Mr. Main, thus exceeding the earth in volume a little over 1233 times. One of the distinguishing features of the planet is the belts, or stratified changeable bands crossing the disk in a generally parallel direction with the plane of the orbit. The number of these belts varies, there sometimes being only one, while at times the whole disk is covered; but there are usually three prominent bands or zones. Months will sometimes pass without any remarkable change in their appearance, when suddenly considerable alterations will take place in a few hours. The first observer of these

bands was Huygens who published an account of them in 1659, with his discovery of similar bands on Mars, and of the rings of Saturn. Cassini afterwards made extended observations upon these bands, and also upon matters relating to the planet. There are also certain spots observable upon Jupiter's disk, the first one being discovered by Hooke in 1664, and which he observed to travel from e. to w. in the course of two hours over a space about equal to half the diameter of the planet. Cassini afterwards, at the Paris observatory, assigned a nearly correct rate of motion, by which he was enabled to determine very nearly the diurnal rotation of the planet, 9h. 56m. Airy, late astronomer royal of England, made an estimate of 9h. 55m. 25s., and Maedler another, which is regarded as the most correct, partly because of the number of observations which were made a basis of calculation. His estimate is 9h. 55m. 26.6s. The observations of Cassini, subsequent to 1666, indicated that the spots, besides rotating with the planet, have a certain degree of motion on its surface, and the elder Herschel established the correctness of these observations. These spots have at times been regarded as being permanent, and the one discovered by Hooke has sometimes been called the "old spot"; but they are now regarded as changeable and the effect of cyclonic disturbances in a deep atmosphere, or beneath it, and as having somewhat the nature of sun spots; and the phenomena of the belts are also thought to be connected with causes resembling those in the solar atmosphere, or gaseous envelope.

The inclination of Jupiter's equator to the ecliptic is 3° 5′ 30″, which would fix the changes of the seasons within narrow limits, were the planet existing under other circumstances resembling those of the earth; but as the temperature of Jupiter is above redness (how far above is not known), the sun's rays, at its immense distance—five and a half times that of the earth, can hardly be taken as an element of its surface heat. Jupiter has four satellites or moons. The first moon has a mass compared to that of the planet of .0000173281, and revolves in an orbit having no sensible eccentricity at a mean distance of 6.04853 times the planet's equatorial radius, in 1d. 18h. 28m., earth time. The second moon has a mass compared to that of the planet of .0000232355, and revolves in a similarly non-eccentric orbit at a mean distance of 9.62347 times the planet's equatorial radius, in 3d. 13h. 14m., earth time. The third moon's mass is comparatively .0000884972; it revolves in an orbit of small but variable eccentricity at a mean distance of 15.35024 times the planet's equatorial radius, in 7d. 3h. 43m., earth time. The fourth moon's mass has a comparative value of .0000426591, revolving in an orbit of greater eccentricity than the third, at a mean distance of 26.9983591 times the planet's equatorial radius, in 16d. 16h. 32m., earth time. From the micrometric observations of Struve at the Dorpat observatory, the following are the estimated diameters of these satellites. In the order above given, first, 2,429 m.; second, 2,180; third, 3,561; and the fourth, 3,046. Their densities must, therefore, differ, the second having nearly double the density of the first, and considerably more than that of the third. Indeed, the density of the first satellite is only about one-fifth of that of the earth, and less than one-fifth more than water. The density of the second is only about two and one-fifth times that of water, but they all have a density greater than that of the planet, which is a little less than one-fourth of that of the earth. On account of the slight inclination of Jupiter's equator to the ecliptic, and the fact that the planes of the satellites' orbits vary but little from the plane of the equator, all of them except the first (which sometimes escapes), suffer an eclipse at every revolution. The mean duration of the eclipses are respectively $2\frac{1}{4}$, $2\frac{3}{4}$, $3\frac{1}{2}$, and $4\frac{1}{4}$ hours. The eclipses of Jupiter's satellites have an interesting reference to the subject of the velocity of light, which was first estimated by means of observations on these occultations by the Danish astronomer Roemer (q.v.).

JUPITER. See PLANETS; SOLAR SYSTEM.

JUPITER AMMON. See AMMON, *ante.*

JUPITER SERA'PIS, TEMPLE OF. The ruins of this temple at Puzzuoli, near Naples, afford a remarkable instance of the changes which have taken and are taking place on the relative position of the land and water on the earth. Only three of the original forty-six pillars exist. They rise out of the water, the pavement of the temple being at present submerged; but they bear evidence that they have been at one time submerged to half their height, which is 42 ft. The base of the pillars as high as 12 ft. is quite smooth; for the next 9 ft. they are penetrated by a boring shell, which is still active in the neighboring rocks. The water must have covered this portion of the pillars, and while the mollusks were busy, the lower 12 ft. must have been protected from their ravages by being buried in mud. The changes of level have been so gradual that the pillars have not been moved from their original position.

JUPON, or JUST-AU-CORPS, a surcoat. The name jupon is chiefly applied to the short, tight form of that military garment in use in the 14th century.

JU'RA, a range of mountains, of a peculiar limestone formation, known as the Jura limestone, extending from the angle formed by the Rhone and the Ain, in a northeasterly direction (with a gradually declining elevation), for more than 450 m., to the upper part of the course of the Maine. The Rhine, breaking through it between Schaffhausen and Basel, divides it into two parts, the Swiss or French, and the German Jura. The loftiest peaks are Reculet de Toiry, Grand Colombier, Credoz, Dôle (which com-

mands a splendid view of Mont Blanc), and Mont d'Or, all of which are between 5,000 and 6,000 ft. in height. The Swiss Jura consists of a number of parallel chains with long deep valleys between, and over it roads have been carried with great difficulty; but the German Jura is more broken up by cross valleys. In both parts of the range are numerous caves, which abound in magnificent stalactites, and in the bones of extinct animals; whilst in the Swiss Jura there are several instances of rivers of considerable size sinking into the ground, and reappearing after some distance, as the Orbe, the Doubs, and the Creuse. The southern part of the range lies partly within the French department of Jura, to which it gives its name. Magnificent pine-forests are here a characteristic feature of the scenery.

JURA, one of the Inner Hebrides, lying off the coast of the mainland of Argyle, and having the island of Islay on the s.w. It is 27 m. long, and about 5 m. in average breadth. A ridge of bleak and rugged mountains traverses the whole length of the island, and rises in the *Paps of Jura*, in the s., to an elevation of 2,566 feet. The w. coast is deeply indented by loch Tarbert, which nearly divides the island in two. The western shores are savage and rugged; the eastern are pleasing in appearance, presenting green slopes and a belt of plain. At the northern extremity of Jura, and between it and Scarba, is the whirlpool of Corrievrekin (q.v.). About 600 acres are under cultivation. Oats, barley, potatoes, and flax are produced; and black cattle are reared for export. Pop. '81, 773.

JURA, a frontier department in the e. of France, is bounded on the s. by the department of Ain, and on the e. by Switzerland. Area, 1920 sq.m., of which upwards of one-third is under cultivation, and about one-fourth in wood. Pop. '80, 285,265. Of its surface, two-thirds are covered by the Jura mountains; the remainder is a low plain about 7 m. wide, skirting the western border. Chief rivers—the Ain, the Doubs, and the Loue. The soil on the mountains is thin and stony, but yields abundant grass, upon which great numbers of horses and cattle are fed from June to Oct.; on the plain the soil is rich, and grain-crops are produced in great abundance and variety. The wines of Arbois, of Poligny, of Etoile, and of Salins, have some reputation; 9,000,000 gallons of wine are produced annually. The mineral wealth of the department is considerable; the working of iron is one of the chief branches of manufacturing industry. Cheese is extensively made, and there is a good trade in timber. The department is divided into the four arrondissements, Lons-le-Saulnier, Poligny, Sainte-Claude, and Dôle. Capital, Lons-le-Saulnier.

JURAS'SIC GROUP, the name given by continental geologists to the oolitic series, because the chain of the Jura mountains, on the n.w. of Switzerland, is composed of these rocks. See OOLITE.

JURE DIVINO, a phrase denoting by divine right, and used in reference to the authority of civil government or of the Christian ministry, or other office or power. Those who hold the *jure divino* view of the ministry, claim that bishops are by divine right the head of the church, and invested with its government; that they are the successors of the apostles, and, as such, inherit apostolic authority; that through them alone as the medium, the Holy Spirit is transmitted to the church. Those prelatists who oppose the *jure divino* view, while they regard the episcopal form of government as in accordance with the will of God and preferable to all others, yet find no reason for this exclusive claim, and believe that non-episcopal ministrations, though irregular, are yet valid. They rest the claims for the ministry not on an unbroken succession, but on the basis of the divinely sanctioned institution of a Christian church, for which a ministry is needed and therefore appointed. The question as to the divine right of kings and civil magistrates has not now its ancient importance. It seems usual to concede theoretically the divine authority of a government actually existing, but to demand that, in the long run of events, it shall authenticate its sacred origin and right by justice; and a persistent failure in this regard is held to indicate its lapse from divine authority, whereupon it is conceived there is in the people a divine right to establish a government which shall be just.

JURIEU, PIERRE, 1637–1713; b. France; the son of a Protestant minister in Blois, and the successor of his father in that office, is chiefly remembered as a bitter and rancorous controversialist. His zeal, and the self-assertion which marked the expression of his views, led him into wordy battles with theologians so prominent as Bayle, Basnage, Grotius, and Bossuet, which were conducted with the greatest acrimony on all sides. He was a voluminous writer, but his published works are now esteemed as little more than curiosities of the period in which he lived. Besides his controversial writings he was the author of *A Treatise on Devotion; Defense of the Morality of the Reformed Church;* and *A History of the Doctrines and Worship of the Jews.* He possessed great learning, and filled the positions of professor of theology and the Hebrew language at Sedan, and that of professor of theology at Rotterdam, where he died.

JURISDIC'TION, in law, means the authority which a court or judge has to entertain a particular case and decide it. The general rule is that if a court which has no jurisdiction to decide a particular case does decide it, the judgment is a mere nullity. Many nice questions often arise on the question of jurisdiction, which are too intricate

to be here stated. When the objection is taken to the jurisdiction in England it is generally called a plea to the jurisdiction. In Scotland it is included among what are called preliminary pleas.

JURISDICTION (*ante*) is divided into original, that possessed by a tribunal over causes which come primarily before it; appellate, upon causes appealed from a lower court; exclusive, possessed by one tribunal only; concurrent, by several tribunals over the same cause; civil, over civil causes; criminal, over criminal causes; assistant, by a court of equity to assist a court of law, etc. A court enforces its jurisdiction by acting upon the person or property of parties within the limits to which its jurisdiction is confined. See CONFLICT OF LAWS.

JURISPRU'DENCE is the science of law, which professes to discuss the principles on which legal rights should be protected and enforced; or it may be called the philosophy of law. This subject has been less cultivated in England than in continental countries, or even in Scotland; for in England the habits of the people and also of their lawyers are too practical to admit of spending time in discussing elementary principles which are more or less vague and speculative. In its literal sense the term means merely knowledge of the law, and seems to have been so used in the Roman law, from which it has been borrowed. The word is often used in a popular sense in this country as synonymous with law, and it is also so used in France; but it is also and more correctly used in contradistinction to law, as implying the system or supposed methodical scheme embracing the principles on which positive law is founded. A distinction is sometimes made between general jurisprudence, which investigates the principles common to various systems of positive law, divesting these of their local, partial, and other accidental peculiarities; and particular jurisprudence, which confines itself to the particular laws of England, or France, or Scotland, as an independent system taken by itself. Jurisprudence thus embraces a wide range, as treating of all those duties which are enforced between man and man; and yet it may be safely said that lawyers, though dealing with the results of the science every day of their lives, seldom give any attention to the latent and general principles on which these results are founded. The only writers who have devoted their attention to this speculative side of the law in this country are Bentham, whose various works abound with these discussions, and Mr. Austin, whose *Province of Jurisprudence Determined* is an acute and masterly work on first principles, to whom may be added John Stuart Mill and Mr. H. S. Maine.

JURISPRUDENCE (*ante*) is a part of practical philosophy, co-ordinate with ethics, politics, political economy, etc. The term is used in two senses: first, as a body of positive law, regulating the relations of individuals and communities, and enforced by tribunals; which may be called practical jurisprudence. This includes all law, local, national, and international, and the methods and procedure of the tribunals which enforce the law. In its second, but more scientific sense, jurisprudence, which in this connection may be called theoretic or speculative jurisprudence, is an inquiry into the cause of law, an investigation of the principles which have influenced communities, in all times, in the enactment of law. This theoretical jurisprudence is usually defined as the science of law; but it is a science which is far from exact, and in which, till recently, our knowledge had made but little progress since antiquity. The Institutes define it as "the knowledge of things human and divine, and the science of the just and the unjust." Part of this definition was borrowed from the Stoics. The second clause of it, which makes justice the basis and principle of law, was accepted as a competent definition through the middle ages by the continental writers upon the civil law; as also in England, where, though the common law had been growing up, the law-writers were men familiar with the civil and canon law. Grotius returns to the same theory in his division of jurisprudence into divine and human; his human law (*jus humanum*) he subdivides into voluntary law and necessary law. Adam Smith made some contributions to the study of jurisprudence, and Jeremy Bentham and Austin rendered valuable service in the classification of legal rights and remedies. The principle which they sought to establish as the basis of law was "the greatest good of the greatest number." A theory deemed more promising by some has been put forward by sir Henry Maine, who has treated the subject in the historical method. From the date we possess in regard to early institutions, he concludes that law is a matter of growth, the result of the needs of the community in which it originated. There may be truth in each of these theories; and probably difficulty would be found in compacting the whole truth into any single brief theory.

JURISPRUDENCE, MEDICAL, the application of medical science to legal cases. Its practice dates to a very early period, particularly among the Jews, Greeks, and Romans, the Greek Hippocrates being the highest authority among the latter. It embraces a far greater circle of knowledge and more extended research in almost all directions than any other branch of human knowledge. The medical expert should not only be well grounded in what is strictly termed medical science, but he should have a fair knowledge of chemistry, to be able to appreciate the bearing of the work of the chemical expert upon the case, and he is called upon to decide many questions of mechanics and other branches of physics. A fair understanding of the principles of criminal law must also be considered proper adjuncts to his strictly medical knowledge. On account of the

great extent of the subject, a few names only will be mentioned of the most distinguished promoters of legal medicine. As a science it is of comparatively modern date, having made little systematic progress until several centuries after the completion of the Justinian code, or until some knowledge of human physiology had become general in the medical profession. The code of Charles V. ordered that in all doubtful cases of suspected infanticide, homicide, and other cases of death by violence, there should be reference to physicians. Ambroise Paré (1517–90) published a treatise upon tardy births, and Fortunatus Fidelis published in 1602 all that was then known in regard to medicine in all its branches. About 20 years afterwards Paulus Bacchias began the publication of his *Medico-Legal Questions*, which were completed about 1650. At this date medical jurisprudence may first be considered as meriting the name of a science. In 1609 Henry IV. of France ordered by a patent the appointment of two surgeons, in every town of sufficient importance, to make examinations in medico-legal cases. The application of the hydrostatic test of Galen (2d c.) had already been revived by Harvey, and was afterwards discussed by Bartholin, Schreyer, Bohn, and others. In 1722 Valentine published his celebrated *Medico-Legal Pandects*, and Albertini between 1725 and 1747 published his great work, entitled *System of Medical Jurisprudence*, which was followed by Tischmeyer's *Institutes of Legal or Forensic Medicine*, which was used by Haller as the basis of his celebrated lectures. Passing over several names of importance, we come to that of Antoine Louis (1723–92), who greatly advanced the science by dissertations and opinions given in the courts, afterwards collected under the title *Causes Célèbres*. In the latter part of the 18th c. Fodéré published his celebrated work on legal medicine and public hygiene, an exhaustive treatise upon the science; and about the same time Dr. Parr published in England his *Elements of Medical Jurisprudence*, which was, however, little more than a compilation from continental authorities. In 1813 Foderé published a revised edition of his original work, and about the same time Orfila published his great work on general toxicology, the most erudite and useful which had yet appeared, followed by his *Leçons de Médecine Légale*. Then followed the works of Devergic, Capuron, Esquirol, and Marc, and the establishment of the *Annales d'Hygiene publique et de Médecine Légale* in 1829, which to this time has been the repository of the most celebrated medico-legal cases. In Germany contemporary labors of great merit were also performed. The names of more recent authors would fill much space. For the trial of legal cases involving the investigation of medical questions there is required a degree of skill and learning on the part of the lawyer as well as of the judge, and of intelligence on the part of the jury, not demanded in ordinary civil or criminal cases. Every medical expert has witnessed the mismanagement and loss of numbers of cases through want of comprehension on the part, frequently of lawyers, and sometimes of judges and juries. If the lawyer have the knowledge of his particular case well settled in his mind by a course of careful examination and consultation with his medical counsel, and his case be a good one, he will generally be able to make it clear to both judge and jury; and alas! if the case be a bad one, he will be likely to carry it if the opposing counsel be unable to comprehend it. Upon a consideration of the innumerable accidents often involving injuries of an occult nature and occurring under an endless variety of circumstances, and of the various kinds of homicides by all kinds of weapons and by poison; of injuries from violent assaults not resulting in death; and of the variety of cases of mental alienation, it is obvious that the sphere of investigation of the medico-legal expert is vast, and that it will often require the joint labors of several persons. In cases of homicide a question as to whether a certain instrument found near the scene of the tragedy is capable of making the wound found upon the body is extremely likely to arise. Or it may be disputed whether the wound was the cause of death, it having, perhaps, been made after the death, which had resulted from poisoning or drowning or suffocation. Many circumstances, if carefully observed, may shift the weight of evidence from one side to another, and the greatest caution is required in guiding the search to a sound conclusion. In cases of suspected infanticide there is often required the profoundest knowledge of physiology and pathology. A witness may testify to having heard a cry, or to having observed certain signs of life; but it may be within the power of a physician to expose the falsity of such testimony by showing the physical impossibility of its being true, on well-demonstrated physiological principles. A proper examination of the lungs, made with due circumspection, precluding the possibility of tampering or of mistake, is competent to decide the question in regard to respiration, but the examination may be performed so carelessly as to vitiate the evidence of the expert. There are often circumstances under which post-mortem examinations are made which require the most extended observation and experimental knowledge. After a body has been buried a few days, a few weeks, or a few months, certain changes, termed post-mortem, take place, which have been mistakenly ascribed to injuries produced before burial. The utmost care in examination is often required in order that the truth shall be maintained. The medical jurist or expert is often called upon for an opinion in regard to the probable ultimate result of an injury, such, for instance, as has followed a concussion in a railroad car, or a fall of a building. The claimant of damages is producing all the evidence of severe and permanent injury that can possibly be displayed, with how much sincerity it behooves the defense in the suit for damages to show. The medical examiners on both sides must be

men of the keenest perception and of practical and theoretical knowledge, or injustice will be likely to follow, to the unfair advantage of one or the other of the parties.

Charitable institutions are sometimes investigated upon charges of starvation, cruelty, or neglect Several, or perhaps all, of the children are found in a state of extreme anæmia, and the evidence is very strong that they have been starved. A plea, however, may be put in that from hereditary causes, and previous bad living, their constitutions have been so affected that their present bad condition is the result of this, and not of want of food in the institution. Moreover, an examination of the premises reveals a bad sanitary condition. The ventilation may be found faulty and not remediable by the party accused, or its faults may not have been understood. The soil-pipes may have been defective, and currents of foul air have defiled the healthy currents of life. Prolonged investigation and unbiased judgment is often required for the decision of such cases. Questions concerning the legitimacy of offspring often arise which are so evenly balanced by the learning and research which is brought into the legal arena by the medical experts that it is sometimes scarcely possible for an unprejudiced person to come to a conclusion; but this only shows how great is the importance of precise knowledge. Certain cases of legal medicine which come within the province of professed alienists, or those who make a special study of mental disease, are more or less of an empirical character, and for that reason often require great experience on the part of the expert to enable him to pronounce a well-founded opinion. This part of medical jurisprudence may be regarded as in its infancy, involving, as it does, cases of temporary mental aberration, of the diagnosis of the various kinds of insanity, and the subject of trance, or somnambulism. The medical expert is often required to be an adept in microscopy, as well as a good chemist, in order to be able to make thorough examinations of various kinds of stains which sometimes form the principal subjects of his investigations. The condition of blood stains, brought forward as evidence of guilt, may be such as to lead to the detection of fraud, and of the fastening of the evidence of guilt upon a party who had hitherto escaped suspicion, or against whom there was no evidence. The blood of certain classes of animals can be certainly distinguished from that of others. How far the distinction can be made it is unnecessary here to say; but the blood of birds is so different from that of man and other mammals that its detection is one of the easy problems of microscopy. Blood which has collected in cavities from traumatic extravasation, and that which is consequent upon post-mortem change, under certain circumstances is often the cause of much discussion. The condition of the heart and of the lungs under the various circumstances in which death by suffocation may take place, often presents problems to the medical jurist requiring the greatest circumspection and analytical examination. Authorities may sometimes be found to conflict with each other, or by a variation in the statement of facts may be made to seem to do so, and therefore the most original and well-educated professional attainments are often required to enable judge or jury to reach an intelligent conclusion. The differential diagnosis of the various modes of death, the evidence of which may have been left upon the body; the evidence afforded by the post-mortem condition of various organs, as the brain, the kidneys, the liver, the lungs, the spleen, the heart, the stomach, and the intestinal canal; of the eyes, of the nails, and of the surface of the body, must be matters familiar to the medical expert or witness. The chemist, as a legal expert in cases of poisoning, must be familiar with the various tests and methods of examining poisons; but the physician who may be called in the case should have as thorough a knowledge as possible of the therapeutic and toxic effects of different poisons upon the body, and particularly of the post-mortem appearances which they produce. The failure of the chemist may be supplied by the physician, or, if there be reason to suspect error in the analysis, scientific pathology may come to the aid of justice.

Dead persons found beneath the surface of water often present difficult problems for the medical expert. Was the death caused by drowning? What evidence is offered by the condition of the lungs or the stomach? Do they contain water; and if the evidence be conclusive that they were drowned, was the case one of homicide or of suicide? Is there any wound upon the body which would have caused death had drowning formed no part of the cause? It is possible that a homicide may have been committed with a knife or a pistol or other deadly weapon, and if death had taken place before the body was thrown into the water the evidences of drowning would have been absent. Was death produced by strangulation, and, if so, what other circumstances are there capable of connecting some person with the crime? An intelligent professional examination of the case will often lead to the detection of the criminal when all the more common modes of search will be in vain. Poison may be found in the stomach of the person supposed to be drowned, and evidence may be furnished tending to show that the poison had been administered with either a homicidal or a suicidal intent. Whichever way this evidence tends, may be strengthened or weakened, or overthrown by the extent to which the poison has penetrated to the various organs of the body, taken in connection with all the circumstances. A very brief sketch of an actual case will serve to further illustrate the value of the science of medical jurisprudence. A woman was found dead in her bed. A coroner's jury found that her throat was cut almost from ear to ear, severing the principal blood-vessels and the windpipe. An open razor was found lying under her right arm. No extensive examination was made; the case appeared to

be one of suicide, no doubt seemed to be raised, a verdict was rendered accordingly, and the body was buried. Several months after suspicions were entertained by certain parties against the husband. The body was exhumed, and another coroner's jury returned a verdict of homicide, charging him with the act. He was arrested and brought to trial. The medical counsel for the prosecution contended that it was a case of suffocation and subsequent throat-cutting. Contradictory evidence in regard to the amount of blood which had flowed from the wound was given at the trial. The theory of suffocation required that there should be but little flow of blood, and several witnesses testified that the loss of blood was insignificant. On the other side witnesses testified to the loss of considerable quantities of arterial blood. It was contended on one side that the wound was such in extent and direction that it could have been done only by a homicide, taken in connection with the rather delicate physical condition of the wife. On the contrary, the defense contended that the extent and direction of the cut furnished evidence of suicide, and, moreover, conclusive evidence against homicide, taken in connection with other circumstances, such as the relations of the bed to the room. It was placed with one side against the wall, and it was contended that it would have been impossible for a homicide to make the incision in the neck unless standing at that side of the bed. This presupposed too much forethought and deliberation on the part of the husband. It was contended by the prosecution that the condition of the lungs, found at the second post-mortem inspection, indicated suffocation, or partial suffocation, previous to the cutting of the throat; but the examination of one of the lungs found in the body at the third post-mortem by experts employed by the defense indicated, as was contended by them, that there had been no engorgement or passive congestion, but rather a want of natural quantity of blood at the time of death. The accused was acquitted. If the case had not been defended in the most resolute manner, and the greatest circumspection practiced, it is probable that a contrary verdict would have been rendered. See HOMICIDAL MANIA; INFANTICIDE; INSANITY; LUNACY; and MURDER.

JURY (JURY TRIAL, *ante*). An impartial jury is insured by the practice of the right of challenging, and by the method of securing a jury invariably by lot, the choice being additionally guarded by the necessity for each juror to swear to his freedom from any preconceived opinion as to the case on trial, and that he is in possession of no information regarding it, of a nature to influence his decision. Juries are divided into common, grand, special, petit, and struck. A common jury is so entitled to signify that it is drawn in the usual manner. A grand jury has for its duty the examination of evidence against a suspected person with a view to discover if this be sufficient foundation on which to frame an indictment. A petit jury passes finally on all cases that come before it. A special jury and a struck jury are obtained by the parties striking from the panel such a number as shall leave the number required by law. Juries are in all cases to determine from the evidence the facts in dispute in the causes that are brought before them. In the matter of law they are supposed to follow the instructions of the court, but frequently a mixed question of law and fact is raised which must be submitted to and passed upon by a jury. Courts of special session, police magistrates, and justices of the peace are qualified to decide causes without the intervention of a jury. The right of trial by jury is guaranteed by the constitution in all criminal cases except upon impeachment, and in all civil cases where the amount in dispute exceeds the sum of 20 dollars. Jurors, in this country, are commonly selected by the sheriff or other court-officer from among the persons possessing the statutory qualifications.

JURY TRIAL (Fr. *juré*, sworn) is a mode of trial in the United Kingdom, by which a few citizens, selected for the purpose, are constituted the judges of the truth of the facts in suits between parties, and compelled to discharge this duty on the sanctity of their oath, but in subordination to a higher judge who has distinct functions of control. Various theories have been adopted as to the origin and development of this characteristic feature of the administration of justice in the United Kingdom. Jury trial does not owe its existence to any positive statute, but has grown up insensibly, and has become inextricably interwoven with the people's habits. It was generally supposed, until recently, that our Anglo-Saxon ancestors had the credit of having nursed the germ of this vigorous plant of liberty; and a cartoon in the new houses of parliament has embodied this popular belief. Recent researches have, however, shown that jury trial, as now known and practiced, did not exist in those times, though it has been the natural development and sequence of other rudimentary forms of trial then prevailing. Indeed, the germ of jury trial is found in human nature itself, and in some phase or other is detected in almost every form of civilization, the essence of it being a reference of disputed facts to the impartial judgment of a few men of average understanding and of nearly the same station in life as the litigants. In ancient Rome a criminal trial was conducted before a presiding judge and a body of *judices*, taken from a particular class, whose duty it was to determine the fact of the guilt or innocence of the accused; but they could exercise the prerogative of mercy, which does not belong to the modern jury. The result of the forms of trial usual with the Anglo-Saxons has been summed up by Mr. Forsyth in his *History of Jury Trial*, and he states these conclusions: Courts were presided over by a reeve, who had no voice in the decision, and the number of persons who sat was usually twelve. The assertions of parties were admitted as conclusive,

when supported by the oaths of a certain number of compurgators. The testimony of the neighborhood was appealed to for the purpose of deciding matters of general concern. Sworn witnesses were appointed in each district, whose duty it was to attest all bargains and transactions, in order that they might be ready to give evidence in case of dispute. Every care was taken that all dealings between man and man should be as open and public as possible. It was by a gradual process of improvement that the precise functions of the jury were defined, and it would be beyond our limits to discuss the details of this progress. It will suffice to describe the institution of jury trial as it now exists, and has for centuries existed with little alteration.

In criminal cases in England and Ireland there are two or three kinds of juries in requisition. In all cases of sudden death, homicide, or murder, the coroner of the district summons a jury of 12 men, who inquire into the circumstances of the death, and if it appear that such death was caused by the criminal misconduct of any person, the jury may find that such person was guilty of murder. This inquisition, or finding, is sufficient, without any other process, to put the alleged criminal on his trial by the petit jury; but one may proceed also against the prisoner in the ordinary manner. In most criminal cases, the grand jury is the medium of accusation. They perform the duty of public accusers; they do not try a prisoner, but the indictments are in the first instance submitted to their consideration, for the purpose of seeing whether there is enough of doubt and suspicion to make it necessary to put the accused on his trial. Accordingly, in every county and borough of England where sessions of the peace or assizes are held for criminal trials, a jury of not less than 12, nor more than 23 men, are summoned to see that there is some foundation for each indictment. The judge first charges them—that is, gives them general directions as to particular crimes, and they hear witnesses for the prosecution only and *ex parte*, finding a true bill, or ignoring the bill, according as they think there is or is not a case worthy of trial against the prisoner. See GRAND JURY. The chief duty, however, as to the trying of prisoners is discharged by the petit jury, which consists of 12 men, who are sworn to try the cause between the crown, as prosecutor, and the prisoner. Previous to this trial, the prisoner is not, as a matter of course, entitled, except in cases of treason, to a copy of the indictment, though in many cases he can indirectly obtain a copy, or at least is generally made acquainted with the particulars of the charge against him. Nor is the prisoner entitled, except in cases of treason, to have a list of the witnesses who are to be brought against him. The first thing is to arraign the prisoner at the bar, and ask him if he pleads guilty or not guilty. If he do not plead guilty, he is then put on his trial. He is not entitled to demand from the court to have a counsel to defend him, though practically there is little difficulty in procuring one. The jury are then sworn. The number of jurors is 12, but a much larger number are summoned, and the prisoner is entitled to challenge those of the jury who, he has good cause to believe, will be hostile to him. He can challenge a certain number of these without giving any reason; but when he exceeds such number, he must state some valid reason. The prisoner is not, however, entitled beforehand, except in cases of treason, to have a list of jurors supplied to him. At the trial the prosecuting counsel begins, and makes a speech to the jury commenting on the case. He then calls his witnesses; and it may be observed that it is a public duty for witnesses to attend, and they can be compelled, subject to fine and imprisonment, to attend and be examined. Each witness is first examined by the prosecuting counsel, then cross-examined by the prisoner or his counsel, and then re-examined by the prosecuting counsel. A witness testifies on his oath, and if he speaks falsely may be prosecuted for perjury. After the prosecutor's case is closed the prisoner or his counsel addresses the jury, and if he has any witnesses, calls them, and they are examined, cross-examined, and re-examined in like manner. If the prisoner calls witnesses the prosecuting counsel has the right of making a speech in reply; and even where the prisoner calls no witnesses, the prosecutor can frequently insist on replying, and thus having the last word. The judge then sums up the evidence by going over it in detail, explaining any points of law that may arise; but he carefully informs the jury that it is for them exclusively to say whether, upon the evidence as laid before them, they think the prisoner was guilty or not guilty. The jury must be unanimous in their finding. If they have a difficulty in agreeing they are locked up a reasonable time, which means generally about 6 hours—though no definite limit is fixed—without food, till they agree. If, after this reasonable time has elapsed, they are unable to agree, they are discharged without a verdict. The consequence is that a new jury are summoned, when the same process is repeated. If they find the prisoner guilty it is for the judge exclusively to pronounce the appropriate sentence, and some discretion is allowed to the judge on that point. But neither the judge nor the jury can pardon the prisoner; it is for the crown alone to do so, and practically the propriety of doing so is left to the home secretary, whose duty it is, if any application, reasonably supported by evidence, is made to the crown, to inquire into it, which he does by examining the matter and consulting the judge. The settled rule is that no new trial can be had in criminal cases, even though some error may have been made by the judge or jury. The only mode of obtaining redress is by petitioning the crown to pardon the prisoner, or commute the sentence, as the case may be; and the home secretary advises the crown as above.

In civil cases the established practice in England and Ireland is for most questions

of disputed fact which are material to the case to be referred to the decision of a jury. It is the only regular mode of solving the dispute which the law provides. The necessity of a jury trial is arrived at after the parties have, by their mutual pleadings, come to an issue—i.e., one party distinctly asserts some fact which the other as distinctly denies, the fact being material to the cause. A jury is then summoned, and the rule is, that all causes of action are tried in the county in which the dispute arose. The jury consists of 12 persons. Juries are either common juries or special juries; the former act compulsorily, but are not paid for their loss of time; the latter also act compulsorily, but they are selected on the ground of their supposed superior intelligence, and they are paid a small sum for their services. In most cases, the plaintiff's counsel begins, and makes a speech to the jury; then calls his witnesses, who are examined, cross-examined, and re-examined on oath; after which, if the defendant's counsel do not intend to call witnesses, the plaintiff's counsel sums up his case, and makes a second speech; but if the defendant's counsel calls witnesses, then he first makes a speech to the jury, next calls his witnesses, and lastly sums up his case in a second speech to the jury, after which the plaintiff's counsel replies; so that it depends on whether the defendant's counsel calls witnesses, whether or not he has the last word with the jury. The judge then sums up the evidence, and the jury must be unanimous in their verdict. If they do not agree after being shut up a reasonable time, they are discharged, as in criminal cases, and a new jury may be summoned. If there was any mistake of the judge, or any mistake and misconduct of the jury, the losing party may, in many cases, obtain leave to have a new trial, which is conducted in the same way before other jurors.

In both criminal and civil cases the functions of the judge and the jury are distinct. The judge has no right to decide the fact, nor the jury to decide the law; but in some cases, the jury cannot be prevented from practically deciding both. Thus, in the case of libel, it was at one time attempted by judges to confine juries to the decision of an unimportant fact; and the practice of lord Mansfield in so restricting the functions of juries was attacked by Junius and others, till finally Mr. Fox's act was passed, which restored the powers of juries in those cases, and made them practically judges of the law also. In other cases, however, the separation of the functions of judge and jury requires very nice discrimination, and none but experienced lawyers and judges can readily recognize these technicalities. In practice, there can be no doubt that juries can with difficulty be controlled in their decisions on all questions affecting personal and political wrongs; and it is especially to their control over the issues of the latter class of cases, often most judiciously exercised, that the great authority and permanent influence of juries are to be traced. One great advantage of jury trial, over and above the essential fairness of the principle on which it is founded, is the experience and knowledge, as well as the love of fair-play, which are thereby acquired by the people who take part in it. On the other hand, it is often complained that in a great majority of cases, whether caused by qualifications of jurors being too low, and the essential obtuseness of uneducated minds, or the capricious and wayward humors which sway them, the result is little else than a lottery, and even indirect bribery is frequently suspected to operate in some of the cases, especially those which unscrupulous attorneys conduct. Probably the chief reason why jury trial has so long stood, and still stands, so high in public favor is, that notwithstanding all its glaring and familiar defects, no other machinery has ever been devised which is not open to similar or greater strictures.

In criminal trials in Scotland prisoners have the advantage of being by law entitled, before the day of trial, to have a copy of the indictment, also a list of the witnesses to be brought forward against them, and likewise a list of the jurors, of whom forty-five are summoned. As regards the order of procedure at a criminal trial, a different practice prevails: the evidence is first given on both sides, and then the prosecutor's counsel addresses the jury, after whom the prisoner's counsel addresses the jury; so that in all cases the prisoner has the last word, and he always knows the whole of the prosecutor's case before he requires to open his own. The judge then sums up the case, as in England. From the forty-five jurors, fifteen are drawn by lot; these constitute the jury, and the verdict of a majority suffices. There is also a verdict of "not proven" allowed to be given, and which is often preferred by the jury in cases where there is little moral doubt, though the legal evidence is insufficient. In England such a verdict is equivalent to, and treated as, a verdict of "not guilty;" and it is so far final in Scotland that the prisoner cannot a second time be put on his trial. The expediency of such a verdict has been objected to, as fixing a stigma on the accused person; but the answer has been made that it is most in conformity with the true result of the inquiry. In Scotland new trials are not allowed in criminal cases; and in case of pardons, the home secretary acts in the same way as he does in England.

As regards trial by jury in civil cases in Scotland the practice was introduced by a statute in 1815, which imported most of the forms then existing in the English practice. As in England, the jury in civil cases consists of 12 persons. Unanimity is not now essential. By a recent statute, 22 and 23 Vict. c. 7, if after being kept 3 hours in deliberation, nine or more of the jury agree on a verdict, such verdict is to be taken as that of the jury; and if, after being inclosed nine hours, the jury, or nine of them, cannot agree, the judge is entitled to discharge them, and generally does so. Moreover,

the judge may allow the jury refreshment after they are locked up to deliberate. These latter modifications on the rigid rule have not been yet adopted in England.

A jury *de medietate linguæ* is a jury half composed of foreigners, and it is a privilege which may be demanded by foreigners, when indicted in England for felony or misdemeanor, if so many foreigners are found in the place.

JURYMAST, a temporary spar used to replace a mast which has been lost from any cause, and so to enable the vessel to reach some port for more permanent repair.

JUS DELIBERAN'DI. See ANNUS DELIBERANDI.

JUS DEVOLU'TUM, a phrase formerly used in Scotch ecclesiastical law to denote the right which devolved on the presbytery to present or appoint a minister to a vacant benefice, if the patron did not within six months present a properly qualified person.

JUS GENTIUM, a phrase now translated to mean a branch of international law (q.v.).

JUS GENTIUM (*ante*). the law of nations; distinguished as *jus gentium privatum*, and *jus gentium publicum;* the former taking cognizance of difference between the laws of different nations as to the same subjects; and the latter of the public relations of different nations with each other. For fuller treatment of this subject, see INTERNATIONAL LAW.

JUSHPORE', a protected state on the s.w. side of Bengal proper, is entirely surrounded by British territory. It covers 1947 sq.m., with 66,926 inhabitants. Its chief place is a town of the same name. The country, a table-land, is much overrun with jungle, the cleared ground producing chiefly grain, rice, and oil, and the uncleared portions abounding in wild silk.

JUS MARI'TI, a phrase used in Roman law, and adopted in the Scotch law to denote the legal right accruing to a husband *qua* husband over his wife's property. See HUSBAND AND WIFE.

JUS RELIC'TÆ, in Scotch law, is the right of a widow to a share in the movable or personal property of her deceased husband. This is a vested or absolute right, and cannot be defeated by the husband's will; and hence the movable estate of the married parties is often called in Scotch law the goods in communion, because, on the death of the husband, there is a division of such goods between the widow, the children, and next of kin of the deceased. If the husband has left children, then the goods in communion are divided into three equal parts, one of which belongs to the widow. If, on the other hand, there are no surviving children or grandchildren, then the goods are divided into equal shares, one of which belongs to the widow. When the husband dies insolvent, the wife cannot claim her *jus relictæ* in preference to the creditors. Though the widow has this right to her *jus relictæ* at common law, yet, if she entered into an antenuptial contract of marriage, by which she accepted an equivalent provision, her right may be defeated, provided the contract expressly stated the one to be in substitution for the other. In England there is no such absolute right of a widow to a share of a husband's goods, unless he died inestate, in which case, but in which only, she gets a similar share of the personal estate by virtue of the statute of distributions. See GOODS IN COMMUNION; HUSBAND AND WIFE; SUCCESSION.

JUS REPRESENTATIO'NIS, a phrase adopted by the Scotch from the Roman law, to denote that inheritable succession, and also to a limited extent in movable succession, when one or more of the children of a deceased person have predeceased, the children of such predeceasing children represent their parent, and take his or her share, Thus, if A die, and one of his children, B, had predeceased A, leaving children C, D, E, F, then C, D, E, F collectively take the share of A's property which would have come to B if B had survived A.

JUSSIEU, DE, the name of a family which, for more than a century and a half has numbered among its members some of the first botanists of the age.—ANTOINE DE JUSSIEU, who was born at Lyons in 1686, and died at Paris in 1758, was professor at the Jardin du Roi, and the author of various works on botany; amongst others, an *Appendix to Tournefort* (Lyons, 1719). He made several voyages and journeys to foreign countries for the purpose of collecting plants, on which occasions he was accompanied by his younger brother, Bernard, who co-operated with him in all his investigations, and acted as his assistant.—BERNARD DE JUSSIEU, who was born at Lyons in 1699, and died in Paris in 1777, contented himself through life in assisting his brother and nephew, without seeking renown by the publication of his own important observations. Having been named superintendent of the gardens at the Petit-Trianon in 1759, he arranged the plants in accordance with a natural system substantially the same as that which his nephew and pupil, Laurent De Jussieu, subsequently elaborated in a more perfect manner. As Bernard refused to make publicly known the principles on which his mode of arrangement was based, the glory of his labors devolved upon Laurent, who alone possessed the key to this botanical enigma.—LAURENT DE JUSSIEU, who was born at Lyons in 1748, and died at Paris in 1836, was worthy the rich heritage left to him by his learned and disinterested relatives. At the age of 17 he began his botanical studies

under his uncle Bernard, and four years later was nominated demonstrator and assistant to Lemonnier, the professor of botany in the Jardin du Roi. He at once began to reform the arrangement of the gardens and collections of plants under his charge, and to apply to them his own and his uncle's ideas in regard to the natural method. For 30 years he continued to develop his novel views; and when his *Genera Plantarum*, which he began in 1778, was finally completed in 1789, the natural system was finally established as the true basis of botany (see BOTANY). In 1793 Jussieu became professor of botany in the newly-organized Jardin des Plantes, where he continued to teach till 1826, when blindness compelled him to resign his chair to his son Adrien. During his tenure of office he founded the library of the museum, which is one of the best in Europe. His papers in the *Annales du Museum* (from 1804–20), and his articles in the *Museum Dictionnaire des Sciences Naturelles* rank among the most valuable contributions to the literature of botany, and embody all the results of his own investigations.—ADRIEN DE JUSSIEU, his son, was born at Paris, Dec. 23, 1797, and died in the same city, June 29, 1853. From his earliest years he showed himself a worthy representative of the reputation of his family. As a youth, he carried off the first prize in the *Concours*, or annual competition among all the collegiate schools of Paris; and on taking the degree of M.D. in 1824, he presented as his thesis a memoir on the family of the *Euphorbiaceæ*, which attracted the attention of all botanists. His subsequent papers on the *Rutaceæ*, *Meliaceæ*, and *Malpighiaccæ*, fully realized the expectations that had been entertained of him. His embryo of the *Monocotyledons* is a work of great merit, and was to have been followed by a series of papers on similar subjects, when ill health compelled him to relinquish this project. He was also prevented by the same cause from extending his *Cours Elémentaire de Botanique* (1848) into a complete and general treatise. In 1831 he was elected a member of the academy, and, shortly before his death, was nominated to the presidency of that body. Jussieu contributed many valuable papers to the *Annales du Museum*, the *Comptes Rendus*, and the *Dictionnaire Universel d'Histoire Naturelle;* but the services which he rendered to science were not due only to his writings, for his influence as a lecturer was of even higher importance, and has been manifested by the number of able botanists of all nations who have owed their training to him.

JUSSIEU, LAURENT PIERRE DE, b. France, 1792; nephew of Antoine; was a writer of educational books and works of fiction, whose writings were popular and passed through many editions; and for one of which, *Œuvres Posthumes de Simon de Nantua*, he received the Monthyon prize. From 1839–42 he was a member of the chamber of deputies. He d. 1866.

JUSTE MILIEU, a French term, signifying the *just mean*, or, according to the common expression, the *golden mean*. After the revolution of 1830 this term acquired a political signification, and came into very frequent use, because of the declaration of the organs of Louis Philippe that the *juste milieu* was the only principle of government which could secure the welfare of France.

JUSTE, THEODORE, b. Brussels, 1818; a writer of considerable note. He is secretary to the board of education in Belgium, and has done much to promote liberal views upon the subject of instruction. His principal publications are: *Histoire Elementaire et populaire de la Belgique; Histoire de la revolution Belge de* 1790; *Prècis de l'histoire der moyen age; Les Pays Bays sous Philippe; Charles Quint et Margaret d'Autreche; Les Pays Bas au XVIeme Siècle; La Soulovement de la Hollande en* 1813, *et la fondation du royaume des Pays Bas;* and *Notes historiques et biographiques.*

JUSTICE, one of the cardinal virtues of the ancients, and the name for a principal department of social and moral duty in all ages. Practically, justice is considered to be clear and definite; but theoretically, there have been great disputes as to its ultimate analysis and the source of its binding quality. It has been maintained very generally that both the perception of what is just and unjust, and the powerful sentiment in favor of the one, and in opposition to the other, are instincts of our nature, or make a part of that comprehensive instinct termed conscience, or the moral sense. On the other hand, it has been held that utility, in other words, the general interests of mankind at large, is what determines justice, and that the sentiment enforcing it grows out of a regard to those interests.

The supposed instinctive origin of the sense of justice is encumbered with all the objections that attend the hypothesis of innate notions generally, so powerfully set forth by Locke in his *Essay on the Understanding* (see ETHICS). But neither is the other view free from serious difficulties, of which the greatest is the universally felt contrast between the just and the expedient, or the simply useful. We are frequently called upon to sacrifice expediency to justice, which would seem to imply an obligation higher than the interests of mankind. *Fiat justitia ruat cœlum*—"Let justice be done, although the universe should collapse." Whence arises this paramount obligation?

If we inquire into the nature of justice by examining the particulars coming under it, we find such instances as the following: It is unjust to deprive a man of his personal liberty, his property, or any other thing belonging to him by law; justice, therefore, requires us to respect each one's *equal rights*. Sometimes, however, we call the law itself unjust, in which case we sympathize even with disobedience to it. It is then sup-

posed that there is some higher law that should have preference—as, for example, the moral law. Thus, it is conceived by most men at the present day to be unjust to hold our fellow-creatures in slavery. Again, it is considered unjust to *break faith* with any one; in other words, promises and engagements must be fulfilled in order to do justice. It is unjust to show partiality in cases where all are equally entitled to favors. *Impartiality* in public tribunals is of the very essence of justice. Nearly the same idea is expressed by the notion of *equality*. In all these cases there are some definite individuals —one or more—that are considered to be possessed of a *right*, and to be wronged if that right is not fulfilled. Herein lies the difference between justice and benevolence or generosity, this last being the mere overflowing of our disinterested fellow-feeling, which no one can claim as a right, and for whose neglect we are not punished.

These particulars, which are among the most marked instances of the property in question, do not suggest any qualities present in all just actions, and absent in the opposite, excepting the existence of a so-called right on the part of somebody, and also the sentiment which demands the punishment of those that violate those rights. We are no nearer the solution of the original question, which is, why should these rights be either determined or enforced on any other ground than expediency, or the well-being of mankind? It is admitted on all hands that the just and the expedient concur in the long run, but yet people demur to making expediency the test of justice. Probably there is something peculiar in the application of the term "expediency," which is the cause of the apparent paradox whereby the two qualities are made the same, and yet not the same.

This is really the case. Of the social regulations that affect the well-being of mankind, there are two widely different classes. In the first place, there are the interests of SECURITY, or those requisites without which human society could not be maintained. Respect for liberty, life, and property, and the performance of engagements, are essential to the very existence of human beings in society: if these cannot be enforced, if offenders in these points were to escape with impunity, disorganization and ruin would be the inevitable consequences. The strength of the sentiment that injustice calls forth is therefore not a matter of surprise; *existence* is at stake, and whatever be the force of our impulse of self-preservation, and our desire of the preservation of our fellow-beings, the same will be the measure of our repugnance to the acts that endanger both the one and the other. Compare these interests with another class of things; also for the good of society, as, for example, the promotion of trade, manufactures, or science, all which are very advantageous to mankind, but not absolutely essential to our existence. They at most express the difference between two grades of happiness, not the difference between existence and annihilation. The contrast between the just and the expedient may now be apparent; both relate to the welfare of mankind; but the one is concerned with *being*, the other with *well-being*, to use a favorite distinction of Oliver Cromwell's. The one is so immeasurably superior in point of urgency to the other, as to account for the very different degrees of our attachment to the two interests. The superior claims of justice to generosity flow from the same considerations; in fact, the argument is an identical one. We can live without generosity, or with some very small share of it; a thoroughly selfish community, if not also very short-sighted as well, might exist; but a community where justice was nowhere observed, could not exist. Still, the grounds of justice are and can be no other than general utility. "If," says Mr. John Stuart Mill, "that expression does not seem to convey a sufficient feeling of the strength of the obligation, nor to account for the peculiar energy of the sentiment, it is because of the extraordinarily important and impressive kind of utility which is concerned. The interest involved is that of security, to every one's feelings, the most vital of all interests. All other earthly benefits are needed by one person, not needed by another; and many of them can, if necessary, be cheerfully foregone, or replaced by something else; but security no human being can possibly do without; on it we depend for all our immunity from evil, and for the whole value of all, every good beyond the passing moment, since nothing but the gratification of the instant could be of any worth to us, if we could be deprived of everything the next instant by whoever was momentarily stronger than ourselves. Now, this most indispensable of all necessaries, after physical nutriment, cannot be had unless the machinery for providing it is kept unintermittedly in active play. Our notion, therefore, of the claim we have on our fellow-creatures to join in making safe for us the very groundwork of our existence, gathers feelings around it so much more intense than those concerned in any of the more common cases of utility, that the difference in degree becomes a real difference in kind. The claim assumes that character of absoluteness, that apparent infinity, and incommensurability with all other considerations, which constitute the distinction between right and wrong, and that of ordinary expediency and inexpediency. The feelings concerned are so powerfnl, and we count so positively on finding a responsive feeling in others (all being alike interested), that *ought* and *should* grow into *must*, and recognized indispensability becomes a moral necessity, analogous to physical, and often not inferior to it in binding force."—*On Utilitarianism.*"

If there were such a thing as intuitive, eternal, and immutable justice, independent of all the concerns of this world, and paramount over the highest interests of mankind, it ought to be something clear and unambiguous, the same in all ages and nations, being revealed to the human mind without any reference to men's outward circumstances.

But, not to repeat the arguments that refute this notion as respects morality in general (see ETHICS), it may easily be seen that as to justice in particular there is a very great disagreement among mankind in everything except the first essentials of social security —namely, the respect for legal rights, the keeping faith, and the like. These things men in all ages have recognized as a part of justice; but in the things less essential to the common safety of mankind, where notions of just and unjust are still admitted and pleaded, there is anything but unanimity of opinion; nay, what is considered just in one country and time, is considered unjust in other countries or other times. Primogeniture is one example; slavery is another.

JUSTICE, COLLEGE OF. See COLLEGE OF JUSTICE.

JUSTICE, LORD CHIEF, the title given in England to the chief judge of the courts of queen's bench and common pleas. The chief of the former court is called the lord chief-justice of England, while the other is merely the lord chief-justice of the court of common pleas.

JUSTICE-CLERK, LORD, a high judicial officer in Scotland, being the second highest judge in point of rank, and in the absence of the lord justice-general, the presiding judge of the court of justiciary. His usual duty is to sit as chief of one of the divisions of the inner house called the second division of the court of session (q.v.). The office in its origin was, as its name imports, of a more humble character.

JUSTICE-GENERAL, LORD, the highest judge in Scotland, also called the lord president of the court of session. Formerly the office of justice-general was a sinecure, and not a judicial office, but the title is now, since 1831, associated with that of the lord president.

JUSTICE OF THE PEACE, in England, is a person appointed by commission of the crown, or by act of parliament or charter, to exercise certain judicial authority in a county or borough. The person who practically appoints to the office is the lord chancellor, who in his discretion may include in the commission certain persons who must have an estate of £100 a year, clear of all rents and charges; or if he has no estate in possession, but is entitled to the reversion thereof, if it be of the rent of £300 a year. All persons having the above qualification may be appointed justices of the peace; but practicing attorneys or solicitors are not eligible for counties in which they practice. The office of justice of the peace is entirely gratuitous, for they receive neither salary nor fees, and hence the justices are often called the "great unpaid." But in modern practice it has been found necessary to deviate from this rule, and to appoint in all the cities and many large towns certain paid justices called stipendiary magistrates at a fixed salary, who discharge the duties of justices, which are necessarily onerous and important. In the city of London and certain other places the mayor and certain corporators are constituted by charter justices of the peace by virtue of their office.

The institution of justices of the peace is very ancient. Previous to 1327 there were conservators of the peace in every county chosen by the freeholders out of the principal men of the county to preform similar duties, but by a statute of Edward III., a change took place in the practice, and ever since the election of justices has been taken from the people, and exercised by the crown. At first, however, they were still called merely conservators or keepers of the peace and were not dignified with their present title. Gradually, the office grew more and more important, in consequence of many statutes adding to their duties and jurisdiction, until, in the thirtieth year of the reign of Elizabeth, the form of commission was revised, and was settled nearly in the form which is now used. The commission is in the name of the sovereign, addressed to certain persons by name, and directing them "to keep our peace in our county of ——, and to keep all ordinances and statutes for the good of the peace, and for the good rule and government of the people, and to chastise and punish all persons that offend against the said ordinances." The commission then assigns them to inquire "by the oath of good and lawful men of all manner of felonies, poisonings, enchantments, sorceries, arts, magic, trespasses, forestallings, regratings, engrossings, and extortions whatsoever, and of all crimes and offenses, etc." Formerly it was usual to select the most eminent to be of the *quorum*, a name derived from the first word of the clause *quorum aliquem vestrum* A, B, C, D, etc., *unum esse volumus*, and one of these must always be present; but now nearly all are included in the quorum clause; and it is no longer an objection to a warrant that one of the convicting justices is not of the quorum. When new justices are appointed the commission is sent by the clerk of the peace to the crown-office, where the names are inserted. On appointment, the justice must take an oath that he possesses the necessary estate as a qualification; and if he act without taking such oath, he incurs a penalty of £100. Each justice, on appointment, also takes the oath of allegiance, and the usual judicial oath. The appointment of a justice of the peace has always stood high in popular estimation, and is eagerly sought after by men of station, especially in the country. As the appointment is practically in the hands of the lord chancellor, it is a frequent charge brought by one political party against another that the appointments are given as rewards for political service; but owing to the frequent alternation of power among parties, the undue preponderance of one set of politicians is speedily neutralized by the acts of their successors.

The functions of justices of the peace are exceedingly multifarious in the present

day, for there are few departments of the law in which the aid of justices is not required for purposes either of administration or of judicial decision. For the last century especially, there has been a continual addition to their duties created by successive acts of parliament, and this is caused by certain remedies which either did not exist before being created, or by their being transferred from other courts and jurisdictions to the summary powers of justices. Of late about 20 statutes every year involve material alterations, chiefly by way of addition to this branch of jurisdiction. To enumerate all the heads of law which in part have been confided to the disposal of justices would require too much space; but it may suffice briefly to indicate the general character of their duties. These are either administrative or judicial. Thus, in carrying out the provisions of the poor-law, if the parish officers require to remove a pauper from one parish to another, instead of intrusting this power to these officers they are required to go before justices of the peace, so as to show the circumstances under which the removal takes place, and to satisfy the justices that the statutes on the subject have been complied with. But the great and distinguishing functions of justices are concerned in the judicial decision of what are called offenses punishable by means of summary convictions or orders. The theory on which all this jurisdiction is founded is, that while the graver crimes must be left to the ordinary remedy of an indictment, and the slighter wrongs to that of an action at law, there are many intermediate offenses which are not worthy of the solemnity of an indictment, nor yet fit to be left to the slow, expensive, and often elusory result of a civil action. Hence this intermediate class of cases arises, which justices can punish by fine and imprisonment swiftly and decisively. Thus, if certain classes of servants employed in agriculture or mechanical arts suddenly break their engagement, they may be fined or imprisoned by justices, for if there were no speedy remedy like this, the mischief often caused to the master might go unredressed. In like manner justices punish poaching offenses, whether against fish or game, personal assaults, vagrancy offenses, etc.

Another important class of duties consists in the preparatory proceedings of all criminal trials, as issuing the warrants to arrest, and examining witnesses so as to see if there is a *prima facie* ground of suspicion sufficient to warrant the committal of such persons to be tried before juries. There are also various offenses of the class of misdemeanors which justices are entitled to try with the aid of a jury at quarter-sessions, but none of the more serious offenses are intrusted to their jurisdiction. The courts composed of justices are general or quarter-sessions where indictable offenses may be tried by juries and petty sessions and special sessions, where a great variety of judicial and administrative business is performed. All these duties are not only performed gratuitously, but the justices are liable for mistakes often of a very innocent description, and have to pay damages for the injuries thereby caused to third parties. They are protected to some extent, so far as they have acted judicially, but if anything like malice can be proved against them, they seldom escape being sued and amerced in heavy damages.

As regards Scotland, the first act establishing justices was that of 1587, c. 82. The office was further regulated by acts in 1609, 1617, 1633; by instructions during the Protectorate in 1655, embodied in the act 1661, which is the principal statute regulating the duties of justices. Two justices are held to form a quorum. The jurisdiction of justices is confined in practice to the penal statutes in reference to revenue, highways, fishings, game, and public-houses, and in many of these the sheriffs have cumulative jurisdiction. Their ordinary criminal jurisdiction is confined to breaches of the peace, petty thefts, and trifling assaults. They appoint a procurator-fiscal or public prosecutor for their own court. The civil jurisdiction is chiefly confined to the small-debt court. In many counties the sheriff's small-debt court is the only tribunal resorted to. No particular qualification as regards rank or property is essential. The appointment is less popular, and the range of authority and jurisdiction, as just shown, is much inferior to what it is in England. This is chiefly due to a different arrangement of judicial business, and to the antiquity of the practice of local sheriff courts in Scotland, which are presided over by trained lawyers, who are paid by a fixed salary. These officers absorb much of the multifarious jurisdiction exercised by justices of the peace in England.

JUSTICE OF THE PEACE (*ante*). Although the institution of justices of the peace is derived from England, the method employed for their creation differs in the United States from that adopted in the former country, and also differs in different states. In some instances they are appointed by the executive, in others elected by the people. Their powers and duties also vary in the different states, but in most they have jurisdiction in minor cases, either civil or criminal. The extent and nature of their powers are usually defined by statute. The distinctive value of this class of magistrates is found in their power to prevent breaches of the peace, and to examine persons charged with the commission of crime or misdemeanor and hold to bail to answer in the upper court, or in default of bail to commit them to jail. In this latter particular their functions are somewhat analogous to those of a grand jury.

JUSTICES, Lords. From the times of the Norman and Plantagenet kings it has been the occasional practice in England for the sovereign to appoint one or more persons

called lords justices to act as his substitutes in the supreme government during his absence from the kingdom. Subsequent to the revolution these appointments have been made by letters-patent under the great seal, and the authority of parliament has sometimes been required in confirmation of their powers. On five occasions such appointment was made by William III. when going abroad, though while his queen was alive he delegated his authority to her during his absence. The statute 12 and 13 Will. III., settling the succession on the house of Hanover, provided "that no person who shall hereafter come to the crown shall go out of the dominions of England, Scotland, or Ireland, without consent of parliament;" but this clause was repealed by 1 Geo. I. c. 2, and the first sovereign of the house of Hanover, during five of his absences in Germany, made an appointment of lords justices. George IV., on his visit to Hanover, delegated his authority to 19 guardians, of whom the duke of York, heir-presumptive, was one. On none of the absences of her present majesty from her kingdom has there been any delegation of the royal authority; and on one of these occasions, lord chancellor Lyndhurst stated in the house of lords that the law officers regarded it unnecessary in point of law to appoint lords justices, in which opinion he concurred. In case of the sovereign's minority, a regency has generally been resorted to. The powers of lords justices have been usually limited in the matter of pardoning and reprieving criminals, summons or prorogation of parliament, the disposal of public moneys in the treasury, and of church preferment in the gift of the crown. The lords justices appointed under the commissions of 1719 and 1729 could continue the existing parliament by short prorogations, till otherwise directed under the royal sign-manual—the other acts here specified could not be exercised without the special signification of the royal pleasure, except when necessary for the public service. The power to create peers has only once been delegated, by Charles I. in 1644; and lord Herbert, afterwards earl of Glamorgan, in whose favor the right was exercised, was, after the restoration, compelled to resign by the house of lords.

Lords justices have sometimes been appointed to carry on the government of Ireland in place of a viceroy; in modern times, this has only been done during occasional absences of the lord-lieutenant, or in the interval between the demise of one lord-lieutenant and the appointment of a successor. These lords justices have usually been the lord primate, the lord chancellor, and the commander of the forces.

JUSTICES' CLERK, an officer, generally a solicitor, appointed by justices of the peace in England to assist them in their duties. Owing to the justices themselves not being trained lawyers, and yet being called upon to administer many branches of the law, and construe acts of parliament, all of which require much skill, the justices' clerk is a person of much local influence, and in practical effect guides and controls the justices under the form of advice. He is, properly speaking, not a public officer, but in the nature of a servant of the justices. By various statutes, he is entitled to receive fees in connection with the business transacted by the justices.

JUSTI'CIARY COURT, the highest criminal court in Scotland. Its judges are five of the judges of the court of sessions—viz., the lords president, justice-clerk, and three others appointed by patent. The quorum of the high court consists of three judges. It sits usually in Edinburgh, but also holds circuit courts twice a year in some of the largest towns, and thrice in Glasgow, the kingdom being divided for that purpose into three divisions or circuits. The jurisdiction embraces all crimes whatever, and it is an appellate court as regards inferior criminal tribunals. Its decisions are final, there being no appeal to the house of lords.

JUSTIFI'ABLE HOMICIDE is the killing of a human creature without incurring legal guilt, as where a man is duly sentenced to be hanged; where one, in self-defense, necessarily kills another to preserve his own life. etc.

JUSTIFICATION, in Law. See page 888.

JUSTIFICA'TION, one of the most common terms of technical theology. In Protestant theology it expresses an act of divine favor whereby a sinner is absolved from the penalty of his sins and accepted as righteous, not on account of anything in himself, but on account of the righteousness of Christ imputed to him. According to this view it is a purely forensic act—the act of a judge sitting in the forum, or place of judgment, and acquitting the condemned by an exercise of clemency, in consideration of the merits of another, who has paid the penalty which was justly his due. In this forensic sense of the word the apostle is understood by Protestants to speak (Rom. iii. 26) of God as "the justifier of him which believeth in Jesus."

In the doctrinal system of the Roman Catholic church justification is considered not purely as a forensic act, or act of acquittal, but, further, as an infusion of personal righteousness, and as hence equivalent to what Protestants specially call *sanctification.* The distinction between the two things is in Protestant doctrine a cardinal distinction—the one being viewed as an *act,* the other as a *work;* the one proceeding from the divine clemency or grace once for all, the other from the progressive agency of the divine Spirit. A corresponding distinction is likewise found in the Catholic system between the *act of justification* and the *state* or *condition of habitual justice.*

This doctrine of justification is laid down most plainly in the epistles of St. Paul,

and it has appeared to some as if there were a discrepancy in this respect between these writings and the epistle of St. James. Whereas the one says: "For if Abraham were justified by works, he hath whereof to glory; but not before God. For what saith the Scripture? Abraham believed God, and it was counted unto him for righteousness." The other says: "Was not Abraham our father justified by works? Ye see then that by works a man is justified, and not by faith only." Perhaps the most effectual way of reconciling these statements is to suppose that the apostle Paul is describing the inward reality of justification, which has no dependence upon works, but only upon faith, while St. James is speaking of its outward manifestation—of its reality as evinced in the Christian character and conduct, which necessarily expresses itself in good works, without which, in *this* sense, there can be no justification. Justification, in short, is independent of works in its origin and primary condition. Its origin is the grace of God—its only primary condition, acceptance of this grace, or *faith*. But it is dependent upon works as its essential manifestation. Faith is not passive, but *active;* and a faith which is not active, which is not a spring of earnest Christian activity, is not a true faith. Such a faith cannot justify a man.

JUS'TIN, a Roman historian who flourished, in all probability, in the 3d or 4th c., although some assign him an earlier date. His history—which is of great value, from its being our only authority on many important points—is merely a selection of passages from the *Universal History* of Trogus Pompeius, a work now lost.

JUSTINIA'NUS (JUSTINIAN) I., FLAVIUS ANICIUS, nephew, by the mother's side, of the emperor Justin, was born 483 A.D., in the village of Tauresium, which afterwards grew into the splendid city of Justiniana, and on the site of which the modern Kustendje stands. Although of obscure parentage he shared the success of his maternal uncle, Justin, being invited at an early age to Constantinople, where he received a careful education, and if the reports of his courtly biographers can be accepted, attained to considerable eminence in philosophy, theology, and law, as well as in the more elegant pursuits of poetry, music, and architecture. When his uncle was elevated to the purple, in 518, he appointed Justinianus commander-in-chief of the army of Asia. The tastes of Justinianus, however, inclining him rather to civic pursuits, he declined this appointment, and remained attached to the court of Constantinople. In 521 he was named consul, and during the remaining years of the reign of his uncle he continued to exercise great influence. In 527 the emperor Justin, by the advice of the senate, proclaimed him his partner in the empire. Justin survived the step but a few months, and Justinianus was crowned as sole emperor, along with his wife, the famous Theodora, whom, despite of her more than dubious antecedents as an actress, he had raised to the position of his wife. Justinianus, on his accession, was in his 45th year. His reign, which extends over 38 years, is the most brilliant in the history of the late empire. Although himself without the taste or the capacity for military command, he had the fortune or the skill to select the ablest generals of the last days of Roman military ascendency. Under the direction of his generals, and especially of the celebrated Narses (q.v.) and Belisarius (q.v.), his reign may be said to have restored the Roman empire, at least in outward appearance, to its ancient limits, and to have reunited the east and west under a single rule. In his first war—that with Persia—he concluded a treaty by which the crisis that had so long threatened was at least warded off; but the rejoicings which celebrated its termination had almost proved fatal, by a domestic revolution, to the authority of Justinianus himself. A conflict of the so-called Blue and Green factions in the circus in 532 was but an outburst of political discontent, which went so far as to elect a rival emperor, Hypatius. Justinianus himself was struck with dismay, and made preparations for flight; but the vigor and determination of Theodora arrested the revolt. Narses, with a relentless hand, repressed the tumults, 30,000 victims having, it is said, fallen in a single day. By the arms of Belisarius the Vandal kingdom of Africa was reannexed to the empire; and the same gen., conjointly with Narses, restored the imperial authority as well in Rome as in northern Italy and a large portion of Spain. One of the most extraordinary, though in the end ineffective, works of the reign of Justinianus was the vast line of fortifications which he constructed, or renewed and strengthened, along the eastern and south-eastern frontier of his empire. These works of defense, and the construction of many public buildings, both in his capital and in other cities of the empire, involved an enormous expenditure, and the fiscal administration of Justinianus, in consequence, pressed heavily on the public resources; but it is admitted to have been ably and uprightly conducted. It is, however, as a legislator that Justinianus has gained renown. Immediately on his accession he set himself to collect all previous legislative enactments which were still in force; and in order to do this thoroughly he first compiled a *code*, which comprised all the constitutions of his predecessors (527–529). See CODE. The authoritative commentaries of the jurists were next harmonized, and published under the title *Digesta Pandecta* (529–533). See PANDECTS. The code was republished in 534, with the addition of Justinianus's own constitutions. His third great legal undertaking was the composition of a systematic treatise on the laws, for the guidance of students and lawyers. This was published a short time before the *Digest*, under the title of *Institutiones*, i.e., "Institutes." All these works were accomplished under the careful superintendence and direction of Tribonian, and were

written originally in Latin. The later treatises which Justinianus caused to be written were in Greek, and were entitled *Novellæ*, i.e., "New Works."

The charaeter of Justinianus as a ruler contrasts favorably with that of most of the emperors, whether of the earlier or the later empire. His personal virtues were of a class and in a degree seldom united in one of such station, and his public administration, with the single exception of that of eeelesiastical affairs, in whieh he was an arbitrary and imperious intermeddler, exhibits great ability and just and upright intentions. He died at the age of 83, and in the 38th year of his reign, Nov. 14, 565.

JUSTIN MARTYR. See JUSTINUS, *ante*.

JUSTI'NUS, surnamed the MARTYR, and frequently the PHILOSOPHER, a father, and, after Tertullian, the most distinguished apologist of the Christian church, was a native of Flavia Neapolis, a Roman city erected on the site of the ancient Sechem, in Samaria. The date of his birth is variously assigned to the years 89, 113, 114, and 118 A.D. His father Priscus was a heathen, and Justinus was educated in the religion of his father. He became an ardent student of the philosophy of his age, beginning with the school of the Stoics, but finally adhering to that of the Platonists. With the last, as he himself relates, he was in the commencement highly satisfied; but, as he was one day wandering along the sea-shore, he encountered a man of mild and venerable aspect, who created in Justinus's mind a desire for higher knowledge than Plato had reached, referring him to the study of the Jewish prophets, and through them to the great Christian teacher whom they foretold. The result was his conversion to Christianity, at some date between 119 and 140 A.D. After his conversion he retained the garb of a philosopher, but, as a Christian philosopher, he strove by his writings and his instructions to bring others to the truth which he had himself discovered. He is said to have been beheaded about the year 165, in the reign of Marcus Aurelius, beeause he refused to offer sacrifice to the heathen gods. His death is attributed by the ancients to the enmity and malignant arts of the Cynic philosopher Crescens. The works of Justinus, although not very voluminous, are highly interesting and important. The books ascribed to him with certainty are two *Apologies for the Christians*, the first addressed "to Antoninus Pius," the second "to the senate;" a *Dialogue with Tryphon the Jew*, which professes to be the record of an actual discussion held at Ephesus. The *Address to the Greeks* is no longer held to be a genuine work of Justinus. The *Exhortation to the Greeks*, the *Letter to Diognetus*, and a work *On the Monarchy of God*, an argument against the polytheism of paganism, and other works once ascribed to him, are certainly spurious. The first edition of his works is that of Robert Stephens (Paris, 1551). The Benedictine edition of Justinus, by Maran, appeared in 1742; and Otto's—the best—at Jena in 1842–46. See Semisch's monograph (1842) and Aubé's (Par. 1874) on Justinus.

JUSTINUS I., or JUSTIN THE ELDER, emperor of the east, was b. in 450 A.D., of barbarian parents, and entered as a private into the emperor's body-guard, of which he rose to be commander. He held this last post till the death of Anastasius I., whom he succeeded on the throne, 518 A.D. Feeling that, from his total want of learning, he was unfitted to direct the internal civil administration, he wisely resigned this duty to the quæstor Proclus, whose administration gave general satisfaction. In 519 he entered into an arrangement with the pope, which resulted in a cessation of hostilities between the Greek and Latin churches. In 523 he resigned to Theodoric, king of Italy, the right—whieh till this time the eastern emperors had always exercised—of appointing "consuls" in Rome; and the same year he became involved in a war with the king of Persia. Some time before his death in Aug., 527, he associated his nephew Justinian with himself in the government.

JUSTINUS II., or JUSTIN THE YOUNGER, emperor of the east, succeeded his uncle Justinian I., in 565 A.D., and espoused Sophia, the niece of the empress Theodora, a beautiful and able, but revengeful woman. His rule was weak and despicable. Through the influence of the empress Narses (q.v.) was dismissed from the exarchy of Ravenna, though at the time Justinus was fully aware that the Longobards were meditating an invasion of Italy. The joy of these savages, on hearing of the disgrace of the one man whom they dreaded, was excessive; and in 568 they burst like an avalanche upon Italy, which from this time was forever lost to the Greek empire. In the midst of a disastrous war with Khosrû, king of Persia, Justinus died Sept. 26, 578, after appointing Tiberius, one of his generals, as his successor. Justinus had been insane from 574, from which time till his death the supreme authority was in the hands of the empress.

JUTE. The jute of commerce is a fiber produced from two species of *tiliaceæ*, the *corchorus olitorius* and *corchorus capsularis*, two plants, alike in qualities, though slightly different in appearance, and sown indiseriminately; the first having round seed-pods and reddish stalk, the latter long seed-pods and bright green stalk. From the fiber which is the cheapest known are produced gunnies, gunny-cloth and cordage, and from the finer qualities carpets, shirting, coat-linings, etc., are made. It is extensively used for mixing with silk, cotton, and woolen fabrics, and also in paper-making, while the leaves are eaten in many places as food.

Although indigenous to the tropics, Bengal being the largest jute-growing country, the plant grows in most climates and on all kinds of soil, rich alluvial lands, and lands

subject to salt-water tidal influences particularly favoring its production. It is an exhausting crop for the soil. The plant, if weeded once, requires no more attention till cutting time. It grows to a height of 12 ft., having a single stalk without branches or leaves till near the top, and will flourish though flooded with 2 ft. of water for a month at a time. In Bengal the plant is cut while in flower, about three months after sowing. Cut close to the ground, stripped of leaves and branches, it is tied in bundles and steeped from 10 to 20 days in water, to loosen the fiber by rotting the outer bark. After steeping, the plant is beaten till the fiber only remains, which is cleaned, dried, and made into "drums" of 70 or 80 lbs. If for exportation, it is pressed into bales of 300 lbs. and upwards. Fine jute has a beautiful glossy golden appearance, and is soft and silky to the touch. Great importance attaches to length and strength of fiber.

The first mention of the word jute is in 1796, in the manuscript commercial index of the court of directors of the East India company. It is the Bengali name used by the natives of Cuttack and Balasore, where the first European manufactories were established in the middle of last century. In 1829 the total export from Calcutta was 20 tons, value £60. In 1833 it had increased sixteenfold, and about 1864–65 the increased demand caused jute cultivation to extend to other districts, the exportation in 1879–80 reaching the enormous amount of 4,626,710 cwts., value, £4,009,491.

England, Bombay, and America originally divided the exports of jute, and up to the time of the civil war North America took the largest share of the gunnies (see GUNNY BAGS). Jute and gunnies are now exported from Bengal largely to France, Australia, and other parts of the world. Jute grown in England is not remunerative. It has been successfully grown in small quantities in America, however.

Gunnies are classed as Nos. 1, 2, and 3. No. 1, thick and close woven, is used for sugar, fine grains such as linseed or rape-seed, and similar products; No. 2, also close woven, but thinner, for rice and the larger grains; No. 3, thick, coarse, and open, is principally suited for the outer covering of double bags. The manufacture of gunny with primitive looms is a common form of convict labor in Bengal. Near the Himalayas, in north-eastern Bengal, the natives wear a fine cloth of their own manufacture, made of jute, or jute and cotton.

Increased demand has lately induced jute production in Burmah, Italy, Queensland, and America, etc.; and a European company has been started to cultivate jute in British Burmah on a large scale. The manufacture, again, is largely carried on in Great Britain, and is the chief industry of Dundee and Belfast. In Bengal jute valued at about a million sterling is annually manufactured, mostly for local consumption, the bulk being turned out by the English mills, of which there are several near Calcutta, employing thousands of hands, the Gauripore and Barnagore mills being the principal. Additional mills on a large scale are being erected, so that it remains to be seen whether the advantages of locality and cheap labor in India, over enterprise, cheap machinery, and established trade at Dundee and Belfast, will cause the present supremacy of the latter places to wane.

A coarse paper has been made for centuries back in Bengal out of jute, by beating the fiber into a pulp with lime, drying it in sheets, sizing with rice starch, and polishing with a stone or shell.

New Zealand flax (*formium tenax*) is a rival fiber. Rhea or China grass (*urtica tenacissimus*), which grows wild in rank luxuriance in the tropics, is so fine and strong as to rival silk, but there is great difficulty in separating the fiber from the wood and bark. The Indian government offer £5,000 for a cheap invention for this purpose; and till this is discovered Bengal jute is likely to maintain its supremacy among the cheap fibers of the world.

***JUTE MANUFACTURES.** The extensive and daily increasing use of jute as a textile material, has induced us to give a brief notice of its manufacture into fabrics, by way of supplementing what has been already said under the head JUTE. This now gigantic industry has sprung up so rapidly, one might almost say so stealthily, that comparatively few persons are aware of its importance, and many have never even heard of the fiber at all. For some 40 years back the Dundee mill-owners have been gradually employing it more and more to mix with flax, until there is scarcely one of them who does not use it largely, and the majority now use it entirely. Jute is more brittle than flax, and will not spin so fine, nor wear so well; but then it is only about half the price, and when woven is attractive enough in appearance. In India it has been manufactured by the natives into gunny-cloth for centuries.

The jute-plant is very largely cultivated in Bengal, and the fiber is prepared there for exportation by the process of water-retting. Jute of a fine glossy appearance brings the highest price in the market. It is spun by processes similar to those employed for flax, but as it is from 10 to 15 ft. long, it is necessary to cut it into 3-ft. lengths before it can be heckled. The fiber also requires to be saturated with whale-oil and water, so as to soften and render it more elastic, preparatory to spinning. Heckling is the first of the spinning operations, and its object is to remove the coarser portions of the jute, and lay the fibers in parallel order. The heckle is a kind of comb, with sharp-pointed steel teeth, from 1 to 2 in. in length. Formerly the process was done by hand, but now heckling-machines are used. The heckled stricks are next taken to the *spreader*, or first

drawing-frame, where they are spread upon an endless creeping-sheet, so as to supply the jute continuously to another part of the machine, where, by a peculiar arrangement of rollers, it is drawn out, through combs of closely-ranged steel pins, into a continuous ribbon, called a *sliver*. A number—say 14—of these slivers are then taken to another drawing-machine, with steel combs, and drawn out into one. In like manner some 20 of these slivers are again drawn into one. The first sliver from the spreader has thus, so to speak, been drawn out 280 times its original length; and by continuing this doubling and drawing, the fibers become thoroughly parallel and equalized. The sliver from the last drawing-frame is still further drawn out, and at the same time receives a slight twist in the roving-frame. Finally the bobbins of "rove" are taken to the spinning-frame, and spun into yarn upon the "throstle" principle.

Just as in the case of flax, the jute tow from the heckling process is also spun into yarn, in which case it is first carded by means of a "breaker" and "finisher" card, and then *drawn*, *roved*, and *spun*, as above described. Indeed, a great deal of jute, as imported, is treated in this way without being heckled at all.

The larger portion of jute fabrics is woven from yarn of the natural color; but for some purposes it is bleached; and when used for carpets, it is dyed various colors. It bleaches with difficulty, but is easily dyed. Hessian sheetings for packing all kinds of merchandise are most largely produced; but sackings, baggings, osnaburgs, ducks, carpetings, mattings, etc., are largely made as well. It is also intermixed with flax, cotton, and wool for various union fabrics. At Dundee the manufacturers have not yet been able to render the dyes on this material fast; but at Barrow-in-Furness, where it is manufactured on a very considerable scale, a process discovered by M. Julius Lachs by which the fiber is permanently dyed is in successful operation. As a result of this, a finer class of jute goods such as curtains, table-cloths, and dress-pieces are now made, to which the general name of *kalameit* is given.

For many years after the introduction of jute in 1833, Dundee was the only place where it was to any extent manufactured; but now considerable quantities of jute goods are made in London, Manchester, and Glasgow, as well as on the continent. A few years back several jute-mills were started in Calcutta. These have been so prosperous that they now supply nearly all the heavy sacking and bagging for the Egyptian and Australian markets. Much of this material is also sent from India to California. Dundee is still, however, the great center of the trade; and there the consumption of the raw material, which in 1836 was only 300 tons, amounted in 1873 to 140,000 tons; but the trade has fallen off a little from then to 1879. It will give an idea of the vast size of some of the larger jute-mills to state that the one belonging to Messrs. Cox Brothers occupies 14 acres of ground, the aggregate power of the steam-engines exceeds 1400 horses, and the hands employed amount to between 4,000 and 5,000. In this mill there are over 1000 power-looms; and like several of the large Dundee factories, it contains within itself all the departments of an extensive engineering establishment. The total quantity of jute imported into Great Britain in 1880 was 231,944 tons, valued at £4,018,800. After opium jute now forms the next great staple of the maritime trade of Calcutta, which exports jute to the value of about £4,500,000 annually.

See *Supp.*, page 888.

JÜTERBOGK, a small manufacturing t. of Prussia, in the province of Brandenburg, is situated on the Nuthe, 27 m. s. of Potsdam. Here considerable wool and flax markets are held, and wine is produced to some extent. Woolen-cloth manufacturers, spinning, weaving, and dyeing are carried on. Pop. '80, 6,955. Near Jüterbogk is the field of Dennewitz, where the Prussians defeated the French under Ney and Oudinot, Sept. 6, 1813.

JUT'LAND (Dan. *Jylland*), the only considerable peninsula of Europe that points directly north, forms a portion of the kingdom of Denmark, and used to comprise the province of North Jutland and the duchy of Sleswick (q.v.), which was called by the Danes South Jutland. The province of North Jutland has an area of 9,709 sq.m., and a pop. (1880) of 868,511. See DENMARK. Jutland is said to have been inhabited in the earliest times by the Cimbri (q.v.), and from this circumstance it has received the name of the Cimbrian peninsula, or Chersonesus. In historical times we find it inhabited by the Jutes, who took part in the expedition of the Saxons to England. As allies of the Saxons they waged war with Charlemagne, and under the name of Normans (Northmen) frequently desolated the coasts of Germany and France.

JUVENA'LIS, DECIMUS JUNIUS, the Roman satirist, was b. at the Volscian town of Aquinum. The year of his birth is unknown; but it may be taken for granted that he was a youth in the reign of Nero; that he was come to man's estate, and was writing in that of Domitian (81–96 A.D.); and that he survived into the times of Hadrian (117–38 A.D.). He seems to have enjoyed a competence. He practiced at Rome as an advocate; and there are some reasons for supposing that he visited Egypt. Among his friends were Martial and Statius, and perhaps Quintilian. But nothing is known of his personal history except a few leading facts—among them that he recited some of his satires in public with much applause; and even these facts are not known to us in any detail. His interest for posterity depends altogether on his writings—on his sixteen satires, still surviving, which occupy the very first rank in satirical literature, and are of priceless value as pictures of the Roman life of the empire. Juvenalis and Horace

respectively represent the two schools into which satire has always been divided; and from one or other of them every classical satirist of modern Europe derives his descent. As Horace is the satirist of ridicule, so Juvenalis is the satirist of indignation. Juvenalis is not a man of the world so much as a reformer, and he plays in Roman literature a part corresponding to that of the prophets under the Jewish dispensation. He uses satire not as a branch of comedy, which it was to Horace, but as an engine for attacking the brutalities of tyranny, the corruptions of life and taste, the crimes, the follies, and the frenzies of a degenerate state of society. He has great humor of a scornful, austere, but singularly pungent kind, and many noble flashes of a high moral poetry. We would especially point out that the old *Roman* genius—as distinct from the more cosmopolitan kind of talent formed by Greek culture—is distinctly discernible in Juvenalis. He is as national as the English Hogarth, who perhaps gives a better image of his kind and character of faculty than any single English humorist or moralist that we could name. Juvenalis has been better translated in our literature than almost any other of the ancients. Dryden's versions of five of his satires are amongst the best things Dryden ever did. Dr. Johnson imitated two of the most famous in his *London* and *Vanity of Human Wishes;* and the version of the whole of them by Gifford is full of power and character. The best-known modern edition of Juvenalis is that of Ruperti, and there are good recent English ones by Macleane and Mayor.

JUVENILE OFFENDERS. The practice of singling out offenders of a tender age from adult offenders, and subjecting them to different punishment and reformatory treatment, has gained ground of late years. In the eye of the law persons are considered capable of committing crime when of the age of seven, and are punishable like other persons. But in England and Ireland, in cases of larceny, whenever a person under the age of 16 is brought before justices, and is convicted, he or she may be committed to the house of correction for three calendar months or less, or, in the discretion of the justices, shall be fined £3 or less; or if a male under 14 years, shall be once privately whipped (with a birch rod, not more than 12 strokes), either instead of or in addition to such imprisonment. The juvenile offender, however, may object to be tried by justices of the peace, and may insist upon being tried by jury, if he prefer it. And in all cases of juveniles under 16 being convicted of offenses, the justice or magistrate may, in addition to the sentence then passed, provided such sentence is not less than 14 days' imprisonment, direct the offender, at its expiration, to be sent to a reformatory school for a period of not less than two years, and not more than five. But the parent or guardian may have the child sent to another reformatory school than the one named by the magistrate, on paying the additional expense, if any. The expense of the conveyance of the offender to the school is paid by the county or borough, but his continued maintenance there must be paid for by the parent or step-parent, if of sufficient ability, such sum, however, not to exceed 5s. per week. Children who have not yet committed crime, but are in a vagrant and neglected state, may also be sent to an industrial school (q.v.). In Scotland there are also statutes with regard to reformatory schools and juvenile offenders similar to what exist in England.

JUVENILE OFFENDERS (*ante*), the name given to the class of vagrant children, abounding in cities and large towns, whose offenses against the peace and in infringement of the law, taken in connection with their youth, are not grave enough to entitle them to be denominated criminals within the meaning of the law. While there can be but little doubt as to the existence of this class under the older forms of civilization, there would not appear to have been any marked effort toward the suppression of the evil until late in the 17th century. The German wars and those of Napoleon, in their enormous production of the condition of orphanage, under circumstances calculated to carry those unfortunates who experienced it into vagabondage and consequent temptation, appear to have first concentrated the ideas of social economists on the subject. Accordingly we find, in the establishment founded at Halle by Herman Fromcke in 1695, the first recorded institution distinctly reformatory for children. This was, in fact, the "ragged school" of the kind established at the beginning of the 18th c. by John Pounds, the cobbler, in England. These individual efforts not only inculcated in the public mind the idea in pursuance of which they were originated, but speedily gave rise to organized effort in the same direction. About 1817 was established the London philanthropic society, which included in its purpose and practice the reformation of juvenile offenders. This organization opened the first English house of refuge for children, which may be considered the prototype of similar institutions in America. The next such establishment to which special importance is given in the history of the subject was founded by Dr. John Henry Wichern, in 1833, at a short distance from Hamburg, in Germany, and was called the *Rauhe Haus.* In all these establishments the reformatory feature had been maintained, associated with education, and with mechanical labor, as in the trades. Contemporary with the early movements in that direction in England were the organized efforts which were made in America, among which that of the society for the reformation of juvenile delinquents in New York, 1823, was the first. This society originated in a movement among the society of Friends, which was made as early as 1818. So important had the subject become in the minds of leading American publicists of the day that Edward Livingston, in his celebrated code of Louisiana, developed his

views with regard to it in impressive language. Out of the New York society grew, by slow stages, the magnificent institution of Randall's island. In Boston a reform school was established in 1826, and one in Philadelphia two years later. The next step in advance was the combination of agricultural pursuits with the reform element, and out of this grew the modern "farm school," as it exists in Massachusetts and other states at the present day. The first farm school was established in Boston about 1837, and 10 years later the first state reform school was organized at Westborough, Mass. It has become the conclusion reached by experience that schools founded and managed under government control are, on the whole, more economically and systematically conducted than those directed by charitable organizations or individuals. In 1837 was founded near the city of Tours, in France, the agricultural colony of Mettray, due to the labors of M. de Metz, who had carefully investigated the reform school systems of Germany and America, and who thereafter devoted his life to the object which had come to possess so much interest for civilized communities. The Mettray school, still flourishing, is an actual village, where live and work a multitude of town children of the lower stratum, in various stages of reform, and all progressive in their lives. The Mettray system, which was really a combination of special features in those of Germany and America, now became the model, and in 1855 was established, in close likeness to it, the industrial school for girls at Lancaster, Mass., which was soon followed at Lancaster, O., by the foundation of a similar school for boys. No account of reformatory institutions of the character of those which we are discussing would be comprehensive without some reference to the Five Points mission and the children's aid society of New York, the former the scene of the labors of rev. Mr. Pease and his fellow-workers; the latter, which was founded in 1853 by rev. Charles L. Brace, an enterprise devoted to the removal of poor children from the temptations of the city, and their establishment in country homes. Both these institutions have faithfully fulfilled the intent of their founders, and have done much to ameliorate the condition of those whom they have taken under their charge. See CHILDREN'S AID SOCIETY. The number of reform schools in 1875 was: in the United States, 40; in Great Britain, 65; in Germany, 400; in France, 50; and in Italy, 33.

JUVENTAS, the goddess of youth in Roman mythology, whose worship dates back to a very early period, a structure dedicated to her having been erected on the capitol at Rome before the building of the temple of Jupiter in the 6th c. B.C. In 191 B.C. a temple was consecrated to Juventas in the Circus Maximus. Here was kept a register of the names of those liable to military duty.

JUXON, WILLIAM, D.D., 1582–1663; b. Chichester, Eng.; educated at St. John's college, Oxford; vicar of St. Giles's, Oxford, in 1609, and rector of Somerton in 1614. In 1621 he became president of St. John's college, and vice-chancellor in 1626. In 1628 he was made dean of Worcester; in 1633 bishop of Hereford and of London; in 1635 lord high-treasurer. In the civil war he adhered to Charles I., losing his ecclesiastical revenues and a large part of his temporal estate. He attended the king at his trial and execution, was deprived of his bishopric after the death of Charles, and imprisoned for refusing to reveal what the king had intrusted to him. After the restoration he was made archbishop of Canterbury.

JYNTEAH, a district of British India beyond the Brahmaputra, in the presidency of Bengal, between 25° and 26° n. lat. and 92° e. long. The district is mountainous and abounds in iron and coal. Capital, Jynteah.

K

K, the eleventh letter of the English alphabet. The Semitic languages had two characters with the same or very similar consonantal power—the one called in Hebrew *Kaph* (hollow of the hand), the other *Koph* (the hind head). Both were at first transplanted into the Greek [κ (*Kappa*) = K, ϙ (old Greek *Koppa*) = Q], and thence into Latin; but in Greek, *Koppa*, or *q*, was early dropped, and in Latin *Kappa*, or *k*, was supplanted by *c* (see ALPHABET and letter C), except in the case of a few words, as *Kalendæ* and *Kæso*. In the languages derived from Latin, accordingly, *k* is used only in writing foreign words. Although unknown to the Anglo-Saxon alphabet, it has in modern English to a considerable extent taken the place of *c* in words of Saxon origin. See C. The character *Koppa*, or *q*, has been retained in modern alphabets, as it was in Latin, only in the combination *qu*. This is clearly a relic of the primitive nature of written characters, when they constituted syllabaries rather than alphabets, each character expressing a consonantal articulation followed by a particular vowel sound; so that there was one character for *ba* and another for *bo;* one for *ka* and another for *ko* or *ku*, as in hieroglyphs. *K* (*q*, or *c* hard) is the sharp mute of the guttural series, *k*, *g*, *ch*, *gh*. See LETTERS. The interchanges of *k* are indicated under C.

KAABA (Arab. "square house"), the name of an oblong stone building within the great mosque of Mecca (q.v.). According to the legend, Adam first worshiped on this spot after his expulsion from Paradise, in a tent sent down from heaven for this pur-

pose. Seth substituted for the tent a structure of clay and stone, which was, however, destroyed by the deluge, but afterwards rebuilt by Abraham and Ishmael. Certain it is that the building existed from time immemorial, and served the Arabs before Mohammed as a place of idolatrous worship, probably to Zohal (Saturn). It is, as it now stands —rebuilt in 1627—35 to 40 ft. high, 18 paces long, 14 broad. Its door, coated with silver, is opened only three times in the year—once for men, once for women, and once for the purpose of cleaning the interior. Next to this door, in the n.e. corner of the edifice, is set the famous lava-like black stone which, since the second year of the Hedjrah (q.v.), has served as kibleh, i.e., as an indicator of the direction towards which all Moslems must turn in their prayers. This stone, which is said to have dropped from paradise together with Adam, is held in extreme veneration, and one of its principal names is "The Right Hand of God on Earth." It was originally of white color, but the sins of mankind have caused it to shed so many silent tears that it has become (externally) quite black. Others explain this change of color by the unnumbered kisses and touches bestowed upon it by the pilgrims, part of whose ceremonies (see HAJJ) consists in compassing the Kaaba seven times, each time either kissing this stone or touching it with the hand and kissing the latter. A smaller stone, to which, however, less veneration is shown, is set in the s.e. corner of the Kaaba. The outside of the Kaaba is annually covered anew with the richest black silks, on which are embroidered sentences from the Koran in gold—a pious contribution first on the part of the caliphs, later of the sultans of Egypt, now of the Turkish emperors. The Kaaba has a double roof, supported by pillars of aloe-wood, and it is said that no bird ever rests upon it. The whole edifice is surrounded by an inclosure of columns, outside which there are found three oratories, or places of devotion, for different sects; also the edifice containing the well Zem-Zem, the cupola of Abbas, and the treasury. All these are further inclosed by a splendid colonnade, surmounted by cupolas, steeples, spires, crescents, all gilded and adorned with lamps, which shed a brilliant luster at night. These surroundings, between which and the Kaaba run seven paved causeways, were first devised by Omar, for the better preservation of the Kaaba itself.

KAAMA, or CAAMA, *Antilope caama*, a species of antelope, a native of the s. of Africa, nearly allied to the *bubalus* (q.v.) of the n. of Africa. It is the *harte-beest* of the Dutch colonists of the cape of Good Hope, where it is the most common of all the large antelopes. Its horns are rather short and thick, curved like the sides of a lyre. It inhabits plains and congregates in large herds. Its flesh is very good, more resembling beef than that of almost any other antelope. It is very capable of domestication

KA'BA-NAGY, a small t. of Hungary, situated in the plain 20 m. s.w. of Debreczin Pop. '80, 6,073.

KABBALAH. See CABALA, *ante*

KABUL. See CABUL, *ante*.

KABYLES, another name for the Berbers (q.v.).

KADESH BARNEA. See page 888.

KA'DIAKS, KONIAGAS, or KOLOSHES, the first two being the native, and the last the Russian designation of an aboriginal race occupying the northern shore of Alaska. Extending a distance of more than 1500 m. across the peninsula, this family, in its various tribal bands, is also to be found scattered over from 100 to 150 m. of the interior. Altogether, there are said to be 14 tribes, the chief in importance, and who give the general name to the rest, being inhabitants of the island of Kadiak. The others are Malemutes, Kaviaks, Sitkas, Chnagmutes, Agulmutes, Tongas, Awks, Sundonus, Takos, etc.

KADMONITES, from a Hebrew word meaning "eastern," is recorded in biblical literature as the name of a Canaanite tribe which, in the time of Abraham, occupied the country in the n.e. of Palestine, immediately under Mt. Hermon. This is the accepted definition of the term, which may, however, have had a more general significance, to wit, "the children of the east," or those living beyond the Euphrates. In this sense the word would bear a meaning similar to that of the Saracens of ancient, or the Bedouins of recent, times, used to designate various tribes from the same district.

KADOM', a t. of Russia, in the government of Tambov, and 140 m. n.n.e. of the t. of Tambov, on the river Moshka. The houses are built chiefly of wood, and the principal trade is in honey. Pop., mostly of Tartar descent '80, 7,107.

KAF. See CAF.

KAF'FA, or FEODOSIA, a fortified t. and sea-port of south Russia, in the government of Taurida, is picturesquely situated on the e. coast of the Crimea, 70 m. e. of Simferopol. The harbor, a portion of the bay of Kaffa, an inlet of the Black sea, is deep and safe. It contains a citadel, a barracks, and a museum of antiquities chiefly collected in the vicinity, and although it has greatly declined, it is still the seat of considerable trade. The principal exports are wheat, hides, sackcloth, and goats' hair. About 250 vessels, of an average of 45,194 tons, enter and clear the port annually. Pop. '80, 8,482.

Kaffa, the ancient *Theodosia* or *Feodosia*, was in the 13th c., when it was under the Genoese dominion, the center of trade. In 1465 it fell into the hands of the Turks, under whom it had 100,000 inhabitants. In 1783 it was taken by the Russians, to whom it was ceded by the treaty of Jassy in 1792.

KAFFA, or KAFA, a kingdom in e. Africa, s. of Abyssinia, on an elevated table-land, 5,000 ft. above the sea. It is mountainous, with wide valleys, and is drained by numerous water-courses, which unite to form the Goshop, or Gojeb, a large river that rises farther south. Kaffa lies between the lake-region of the head-waters of the Nile and the mountains of the Moon, lat 7° n., long. 36° 30′ east. The country is fertile and in some parts well cultivated, the coffee-plant being indigenous, and, as is believed, having derived its name from that of this country. There is a considerable trade in cotton and cotton cloth, and slaves. The natives are of the same family as the Abyssinians, and speak one of the Hamitic group of languages. Capital, Bonga.

KAF′FIR, or KAFIR, the name of a great family of the human race inhabiting the s. part of the continent of Africa, classed by Dr. Latham in division B of the variety Atlantidæ, their physical conformation being modified negro, and which also includes the Betjuans (q.v.), Ovampos, Damaras, and other similar tribes living in the region s. of 18° s. latitude, and extending to the boundaries of the Cape Colony. By the term Kaffir, however, the tribes inhabiting the coast-country on the e. side of s.e. Africa are generally understood, and recent events have further narrowed the designation in a popular sense as more particularly applying to the tribes living in the country between the Cape Colony and Natal, those e. of the latter colony, as far n. as Delagoa, being now better known as Zulus or Zulu Kaffirs. General distribution of the Kaffir races: 1. Tribes (Amatabele, Amazulu, etc., n. of Natal; Amampondo, Amaxosa,* etc., in Kaffraria proper) speaking the Zulu language and its dialects, inhabiting the east-coast region; 2. Tribes (Makololo, n., and Bakuku, n.w. of lake Ngami; Bakalihari, etc.) speaking the Sichuana language and its dialects, inhabiting the central region, and known under the general name of Betjuans; 3. Tribes (Ovampos and Damaras) speaking the Ovampo or Otjiherero and its dialects, inhabiting west-coast region.

History, etc.—The word Kaffir is derived from the Arabic *Kiafir*, "an unbeliever," which was applied by the Mohammedan inhabitants of the e. coast to the native tribes living south of them, and adopted by the Portuguese, after their settlements at Melinda and Mozambique, to designate the inhabitants of the vast region lying to the south, and extending to the country of the Hottentots, now the Cape Colony.

The oldest genealogical records of the Kaffir chiefs go back to 1617. In 1688 the old Dutch colonial records first mention the Kaffirs as having at that early period driven the Hottentot aborigines as far south as the Great Fish river; and in 1784 the latter was declared the boundary of the Cape Colony to the east. In 1798 commenced our series of Kaffir wars, and between that and 1811 they were repeatedly attacked and driven across the Fish river. In 1819, under the leadership of a false prophet called Makanna, they ventured to attack Graham's Town, but were repulsed with great slaughter. A period of broken peace and ill-kept treaties then succeeded, during which time a considerable European and Hottentot population had been settled along the frontier (1820). In 1828 they were driven out of the Kat river valley, which was filled with Hottentot settlers; then came the great war of 1834–35, which cost upwards of a million sterling, and ended in the Kaffirs being driven to the e. of the Great Kei, and the territory between it and the Great Fish river was taken possession of by sir B. Durban, but immediately restored by the then colonial secretary, lord Glenelg. In 1846 war, which had been long inevitable, again broke out, and the Gaika and Islambie Kaffirs, members of the great Amaxosa tribe, invaded the colony, and overran the whole of the frontier districts as far w. as Uitenhage, and n. to the Stormbergen, inflicting great loss even on the imperial troops on many occasions. Again, under sir H. Smith, they were in 1848 driven back, and the country they inhabited once more annexed to the British crown, under the title of British Kaffraria. Unfortunately, however, the influence of the chiefs remained unbroken, and they used it for evil by again invading the colony in 1851, and this time not only the Gaika tribes, but the whole of the Amaxosa and Amamtembu, besides a numerous body of rebel Hottentots, all well armed and provided with ammunition. Again, after a struggle of many months, the enemy was finally repulsed; and sir H. Smith being relieved by sir H. Pottinger, and he by sir George Grey, the latter, by his wise and astute policy, succeeded in breaking up the power of the chiefs, dispersing the tribes amongst the European settlers, and utterly destroying their strength, in which he was not a little assisted by a terrible famine which about that period fell on the unfortunate people, they having neglected to plant their fields, and having killed nearly all their cattle at the command of a false prophet called Umlangeni, whose influence the deluded chiefs used to urge their people to this last war. In 1877 a new disturbance broke out amongst the Galeka Kaffirs in the Transkei territory, extended to the Gaikas, and was followed by the war with the Zulus. There was sharp fighting between the Kaffirs and the English and colonial forces; and the anxiety created by the war inflicted a serious check on the prosperity of the frontier settlements. A well-armed

* The prefix *Ama* signifies tribe or family.

European population now occupies British Kaffraria, and the natives look for justice to local magistrates instead of to their former chiefs. Beyond the Kei river the chiefs still rule, but their power is very much broken.

The Kaffir races are a tall, well-made, and generally handsome people, of a dark brown or bronze color, and hair in short woolly tufts. As we proceed to the n. they gradually become more assimilated to the negro type, until at last the two races seem to blend together. They are brave, and in times of peace kind and hospitable to strangers, affectionate husbands and fathers; and their minds have a peculiarly acute and logical turn, which in many of our "palavers" with them often gave them the best of the argument. They are an honest people, except, perhaps, in the article of cattle. Although their idea of God appears very indistinct, and their feelings of veneration but small, yet they are very superstitious, and dread the influence of wizards and sorcerers. Their huts, which are built by the women, are of a bee-hive shape, composed of wattles stretched with grass, and a collection of them is called a "kraal," a word of Portuguese origin signifying an inclosure. The general rule of the chiefs is patriarchal, they being assisted, however, by a number of "pakati," or councilors, whose advice is generally followed by the chief. Polygamy is allowed, and wives are generally purchased for cattle. The chief has absolute power over the property of his whole tribe, although he seldom exercises it. If any individual accumulates great wealth, an accusation of witchcraft is sure to make him disgorge it. They practice, in common with all other African nations, circumcision and many peculiar rites of purification, many of them analogous to those prescribed in the Mosaic law; but these rites appear, both in Africa and Asia, to have been generally practiced at an earlier period even than the Jews adopted them. The Kaffir criminal code is very simple: a fine, great or small, of cattle pays for almost any offense, and the *lex talionis* is strictly forbidden even in case of murder. Many of their ceremonies and dances are of a very gross and obscene nature, although the Kaffir women, especially after marriage, are very chaste and modest in their deportment, and present in this respect a striking contrast to the Hottentot race. The Kaffirs are strictly a pastoral people, and the men tend their herds exclusively, even to milking them, leaving to the women the labor of cultivating their gardens, building their huts, gathering fuel, etc. They generally wear a blanket; the former robe of softened ox-hide is now very seldom seen. In time of war the Kaffir appears in the field naked and painted with a fiery-red clay. The native arms are assagais and clubs, but the use of fire-arms is now prevalent amongst all the south African tribes; and in the late war the Kaffir warriors, in skirmishing, excited the admiration of the light companies of some of our most distinguished regiments. The Kaffir language is considered as a dialect of the Sichuana, which is the original stock of the different tribes of the Kaffir race. It is fine, sonorous, and expressive, with a most ingenious and complicated system of grammar. On the Cape frontier many Hottentot and Dutch words have been introduced; and in the Zulu dialect the Wesleyan missionaries and bishop Colenso of Natal have published many excellent works tending to elucidate the philology of south-African languages.

The Amafengu, or Fingoes, are the remains of various Zulu tribes, refugees from the wars of Chaka, reduced to slavery by the Amaxosa Kaffirs, and rescued by sir B. Durban in 1835, and settled by him along the e. frontier of the Cape Colony. They are a saving, careful people, and many of them are converted to Christianity. They have always been our firm allies against their hereditary enemies, the Kaffirs, although of the same race and language. The Fingoes are often, from their money-making propensities, called the Jews of the Kaffir race. The Amampondo, Amabaxa, and other tribes living near the Natal frontier, have never been at war with us, although often quarreling amongst themselves; they are gradually declining in numbers, and are not near so fine a race as the frontier Kaffirs.

The number of the Kaffir races has been estimated at three millions, scattered over an area of about a million sq. miles. Of these there may be about 300,000 in Kaffraria proper, 150,000 in British Kaffraria and Cape Colony, and 200,000 in Natal.

KAFFIR CORN. See DURRA.

KAFFRARIA, PROPER OR INDEPENDENT. The general designation of Kaffraria was formerly applied to the whole of the coast region of South Africa e. of the Great Fish river, and extending as far n. as Sofala, but it is now limited to a comparatively small tract running parallel to the coast at a distance of about 30 m. from it, between the e. frontier of the Cape Colony and Natal, and comprising an area of about 5,000 sq. m., lying between the Great Kei and Umzimculu rivers. The country between this and the Quathlamba mountains is now occupied by Kaffir tribes who have submitted to British authority.

Kaffraria is drained by the Great Kei, the Umzimvoobo or St. John's river, and its fan-like branches, the Tsetse and Tena, which rise in the Quathlamba, the Umzimculu, Umtata, Umbashee, and several other streams with short courses, which rise in a high escarpment or ridge, forming a sort of buttress to an undulating grassy but woodless plateau, which extends along the foot of the mountains at a height of about 2,500 ft. above the sea. The rivers, especially near the coast, run through deep wooded kloofs, sunk below the level of the surrounding country, and none of them are navigable. The

coast generally is rocky and dangerous, and should not be approached closer than 3 m.; anchorage may be found in one or two shallow bays e. of the St. John's river.

Kaffraria is inhabited by the remains of the Amaxosa and Amamtembu tribes of Kaffirs (who, since the annexation of British Kaffraria, have retired across the Kei river), the once powerful tribes of the Amagaleka, Amampondos, and Amabaxa, besides the remains of many broken Zulu tribes, refugees from the wars of Chaka and Dingaan, who have found shelter in that portion of the country that borders on Natal. The total number of natives may be roughly estimated at 300,000; but it is probable in a very few years the whole region will be absorbed into the neighboring colonies of British Kaffraria and Natal, as the population is rapidly decreasing, and the chiefs fast losing their prestige and influence. The paramount chief is Rili, or Creili, of the Amagaleka tribe, who has his principal kraal about 20 m. e. of the Great Kei river.

The soil of Kaffraria is fertile. The natives raise sufficient crops of Indian and Kaffir corn, pumpkins, etc., for their own use. Cotton has been successfully grown in many localities along the coast. Cattle, horses, and goats thrive well, and a considerable trade with the adjacent colonies is carried on in hides, horns, goat-skins, tallow, and wagon-wood. The Wesleyan society have established many well-organized stations, forming convenient halting-places along the lines of road which traverse Kaffraria between the Cape Colony and Natal, and where travelers will be sure to meet a kind reception.

KAFFRARIA, British, a country of South Africa, between the Great Kei, the White Kei, the Keiskamma, and Indian ocean (wrested from the Kaffirs by the Cape Colonists in the war of 1846–47), was for a time an independent colony, but is now a part of Cape Colony. It has an area of 6,500 sq.m., and is bounded on the n. by a high and picturesque range of mountains called the Amatola (4,000 to 5,000 ft.), a continuation of the Great Winterberg and Katberg ranges in the Cape Colony. It is well watered by the Keiskamma, Chumie, Buffalo, Gonubi, and other minor streams or torrents, generally running in deep and rugged beds, and by the Great Kei, a considerable stream, dividing it from Independent Kaffraria. None of these rivers are navigable.

The physical aspect of British Kaffraria is similar to that of Lower Albany, or the e. coast region of the Cape Colony. Many fertile, well-watered valleys are found amongst the spurs of the Amatola mountains. Behind these mountains are high grassy plateaux, extending to the Kei river, and well adapted both for grazing and agriculture.

In 1859 British Kaffraria was divided into farms of from 1000 to 3,000 acres, which were granted free on certain terms of settlement and defense. The pop. in 1875 was 9,183 of British and German descent (exclusive of the military), and 108,973 of the native races, Amaxosa and Amafengu Kaffirs.

The principal town is King William's Town, the head-quarters of the military and seat of government, and containing a pop. of about 2,500 souls. The port of British Kaffraria is East London, at the mouth of the Buffalo river, where there is good anchorage. There are numerous military posts and German villages extending along the line of the Buffalo from the sea to the mountains, and also several mission-stations, Episcopal, Wesleyan, Presbyterian, and German; and the natives are in numerous cases reclaimed from heathenism, and becoming an orderly and civilized population. In 1861, by her majesty's letters-patent, British Kaffraria was declared an independent colony, under a lieutenant-governor, the governor of the Cape being styled high commissioner. Its revenues were derived from quit-rents of the farms granted, and the revenue duties collected at the port of East London, and were about sufficient to pay the expenses of the limited executive. In 1865 British Kaffraria ceased to be an independent colony, and was annexed to Cape Colony.

The larger *ferœ naturæ* have nearly disappeared, although a few years back the high plains n. of the Amatola, called the Bontebok flat, were the favorite hunting-grounds of South African sportsmen. A considerable number of the German legion, sent here after the Crimean war, have received grants of land, and make excellent settlers. Two English and one or two German newspapers are published in King William's Town. A railway traverses British Kaffraria from East London to Queenstown.

KAFIRISTAN' (i.e., country of the Kafirs or infidels), a country of Central Asia, on the s. declivity of the Hindu Kush, forming part of the northern basin of the Cabul, in 35° to 36° n. lat. and 69° 20′ to 71° 20′ e. long.; area, 7,000 sq. miles. The country is divided into narrow valleys by spurs of the Hindu Kush. The inhabitants, whose number is unknown, differ, as the name of the country implies, in creed and origin from the great body of the neighboring tribes; in features and complexion they claim kindred with Europeans. Their language, too, is said to be wholly independent of the other dialects of Central Asia. This state of isolation is mainly owing to the natural strength of the region, which, though repeatedly invaded, has never yet been subdued. The soil is fertile enough to render external intercourse comparatively unnecessary, yielding, as it does, fruits, wheat, and millet, and feeding large herds of cattle, sheep, and goats. Metals and timber likewise abound, the people working in the same with considerable skill.

KAF'TAN, an article of Turkish dress, like a dressing-gown, in use amongst other oriental nations.

KA'GA, a province on the w. coast of Japan, between parallels 36 and 37 of n. lat., the former seat of the Maëda family of daimios, and one of the richest provinces in the empire. What renders the name a household word in Europe and America is the manufacture of splendid gold and silver inlaid bronzes, and the red and gold pottery produced at Terai, Yamashiro, and Kutani (nine valleys). The characteristic decoration in gold and rouge of Kaga-ware is a development of the school of the Eraku artists of Kioto. The ware requires three bakings. Kanazawa in Kaga is a large city of 70,000 souls, and Hakusan (white mountain) rises on the s.e. border. Nearly all modern Kaga-ware is decorated in Tokio.

KAGOSHI'MA, or KAGOSIMA, a t. of Kiushiu, one of the Japanese islands, capital of the feudal territory of prince Satsuma; pop. 200,000. This prince was the sufferer in 1863 of the punishment allotted for the murder of Mr. H. L. Richardson, a Hong-Kong merchant, who was killed on the highway between Yedo and Yokohama by a party headed by the younger brother of Satsuma. For this offense the British bombarded Kagoshima, Aug. 13, 1863, and obtained an indemnity of £25,000.

KAHAN, or PROBOSCIS MONKEY. See NASALIS, *ante*.

KAH'LENBERG, the name of a hill on the Danube river in Austria, a short distance from Vienna. It is memorable from having been the scene of the arrival of Sobieski to the rescue of Vienna, when that city was besieged by the Turks in 1683. It is 1100 ft. above the river, and its summit is made a place of resort by the Viennese, where various amusements are conducted.

KAIAN'IANS, the second of the historic, or sixth including the legendary or prehistoric, dynasties of Persia. The twelfth and last monarch of the previous dynasty, Afrásáb II., had been conquered by Rustam, who placed upon the throne Kai-Kubáb, a descendant of Minúchihr, and thus founded the Kainian dynasty, so named on account of the prefix *Kai* (mighty) attached to the names of the kings, beginning with Kai-Kubad and followed by Kai-Káús (Darius the Mede), Kai-Khusrau (Cyrus), Luhrásp, Gashtásp (in whose reign Zoroaster introduced the fire-worship); Bahman, or Ardashir Dirázdast; Dárá I.; Dárá II. (or Darius Codomanus of the Greeks). This dynasty existed 660–334 B.C., ending with the battle of Arbela, in which the last king, Darius, was overthrown by Alexander.

KAI'ETEUR FALL, a noble waterfall in British Guiana, which is formed by the waters of the Potaro river plunging from the basin of that stream into the valley of the Essequibo below, a sheer descent of 741 ft., and a sloping cataract thereafter of 88 feet. The breadth of this fall at its beginning, on the edge of the declivity, is 369 ft. and its depth at the same place 15 ft. in the dry season.

KAIN, an old term in Scotch law, used to denote rent paid in kind, as in the shape of poultry or animals, to a landlord. The word is said to be derived from *canum*, a Latinized form of the Gaelic *ceann*, "the head."

KAIN, JOHN JOSEPH, D.D. See page 889.

KAIRA, a large t. in Hindustan in the British collectorate of the same name, within the presidency of Bombay, near the confluence of the two small rivers, Watruk and Seree. It is in lat. 22° 45′, long. 72° 41′, and 265 m. from the city of Bombay. It is surrounded by a wall with bastions. The streets are narrow and irregular, but the houses are high and well built, with sloping tiled roofs, and the gables and verandahs ornamented with carved woodwork. The district was ceded to the East India company by the Guicowar and has an area of 1869 sq.m., with a pop. of 580,631.

KAIRWAN', a decayed t. of Northern Africa, in the state of Tunis, is situated 80 m. s. of the t. of that name, in a treeless, marshy plain. It is surrounded by a brick wall, surmounted by four towers. It contains about 50 ecclesiastical structures, of which the Okbah mosque, one of the most sacred of Islam, is compassed by a quadrangular wall, and contains numerous ancient pillars of marble, granite, and porphyry. The trade is chiefly in furs; saddlery and sandals are manufactured. Pop. 12,000.

KAISARIYEH. See CÆSAREA.

KAISER, the German title of emperor. It was derived from that of Cæsar, permitted by Diocletian to be used by the governing prince of Dalmatia, Croatia, and the line of the Danube, who was heir-presumptive to the imperial throne. The term was employed by the German emperors of the middle ages, and later by the emperors of Austria. In 1871 it was assumed by William I., of Prussia, on his being crowned emperor of Germany.

KAI'SERSLAUTERN, or LAUTERN, a thriving t. of Rhenish Bavaria, is pleasantly situated on the Lauter, 25 m. n.w. of Landau. Pop. '71, 17,867; '80, 26,323.

KAISERSWERTH, a t. in Prussia, 6 m. from Düsseldorf; pop. 2,223. It is situated in the province of the Rhine and on the river Rhine; and is chiefly important for the house of deaconesses established by Theodor Fliedner (q.v.) in 1836.

KAKA'PO, or OWL PARROT (*Strigops habroptilus*), a remarkable bird, a native of New Zealand, belonging to the parrot family (*psittacidæ*), but of very owl-like appearance, and, like the owls, nocturnal, or nearly so, concealing itself in holes during the day,

except in very gloomy weather. The kakapo takes possession of a hole, where one exists, among stones or the roots of trees, but seems also to have the power of making a burrow for itself. Dogs take it in its hole, although it makes some resistance; but, after a little experience, they learn how to deal with it. It is also pursued and taken by dogs when running on the ground. The flesh of the kakapo is more pleasant and delicate than that of any other parrot. This interesting bird has almost disappeared from the northern island of New Zealand, and is much more rare in the middle island than it was not many years ago. It will probably soon be extinct, unless means are adopted for its protection. It is the only known bird having large wings which does not use them for flight.

KAKODYLE. See CACODYLE.

KALAFAT, a walled t. of Roumania, in the s.w. part of Wallachia; pop. 2,500. It is on the left bank of the Danube, which here forms the Bulgarian boundary, and is directly opposite Widin, and 155 m. from Bucharest. It is very strongly fortified, and has frequently been an important strategic point in the Turkish wars. The Russians lost here 10,000 men in an engagement with the Turks in 1829; and in 1854 severe engagements took place in the same vicinity. In April, 1877, war was declared between Russia and Turkey, and Kalafat was occupied by Cossacks. Early in May the Roumanians held Kalafat, and the Turks shelled the town from the fortress of Widin, thus beginning the war between Turkey and Roumania. By June 3 the lines from Galatz to Kalafat were held by 240,000 Russians and 60,000 Roumanians.

KALAKAU'A, DAVID, King of the Hawaiians; b. Honolulu, Nov. 16, 1836; descended from Keawe, an ancient king of the islands; received an English education with prince Lunalilo and fifteen other hereditary chiefs in the royal school at Honolulu. In 1860 he visited California. On the death of Lunalilo, who appointed no successor, Kalakaua was elected king in 1874 by the legislature, over Emma, queen dowager and relict of Kamehameha IV. The partisans of Emma, on hearing the result, broke into the court-house and attacked the legislature which had elected her rival. Assistance being asked from the English and American ships in port, the rioters were dispersed, and Kalakaua was crowned the seventh king of the Hawaiians. Two days afterwards he proclaimed his brother, prince William Pitt Seleiohoku, heir-apparent.

KALAMA, a town in Washington territory, in Cowlitz county. It is situated on the Pacific division of the Northern Pacific railroad. Situated on the Columbia river, 45 m. from Portland. It is the point of connection between the railroads and the Oregon steam navigation company. It was laid out in 1871, and was incorporated a city during the same year. It contains hotels, churches, a public school, a jail, and a fire department. The neighboring country is finely timbered, and at a short distance are extensive coal measures. Kalama is the seat of the offices, warehouses, and manufacturing establishments of the Northern Pacific railroad. Pop. '80, 129.

KALAMA'TA, or CALAMATA, a sea-port of Greece, capital of Messenia, near the head of the gulf of Koron; pop. 6,327. It has considerable trade. The exports are figs, oil, and silk. It is the seat of the bishop of Messenia. It is supposed to be the site of Pheræ, prominent in the time of the Trojan war. In the period of the crusades it was the most important town of Peloponnesus, was annexed to Venice, but in the 18th c. came into possession of the Turks.

KALAMAZOO', a co. in s. Michigan, organized 1830; has a soil of great agricultural value. The Kalamazoo river flows through the county near its center, and the country is dotted with burr-oak plains or openings; pop. in '70, 32,054; in '80, 34,342; area, 576 sq. miles. The soil is composed of a brown loam, with a strong admixture of clay; this is also found where the prairies border the Kalamazoo river. These prairies are covered with wild flowers of many varieties. Much attention is given to the raising of live-stock. All products abound that are found in the middle states. From 40 to 80 bushels of corn to the acre are produced, and the average of wheat is placed at 25 bushels. Ledges of sandstone occur in the southern portion; also fine timber growing on the bottom-lands by the Kalamazoo and a number of smaller streams. Lines of railway cross the county in every direction. Among the industries are the manufacture of furniture, pumps, carriages, musical instruments, and agricultural implements. There are mills run by steam and water power, foundries, and machine shops. Co. seat, Kalamazoo.

KALAMAZOO', a city of Michigan, United States, is situated in the s.w. portion of the state, on the w. bank of the river of the same name, 65 m. from its mouth, and 143 m. w. of Detroit, on the Michigan Central railway. It has a state lunatic asylum, a college for both sexes, 16 churches, 3 newspapers, and several manufactories. Pop. '70, 9,181.

KALAMAZOO' (*ante*), a city in Michigan, capital of Kalamazoo co., on the river of the same name, 143 m. from Detroit; reached by the Michigan Central and Lake Shore and Michigan Southern railroads; pop. '80, 11,937. It is a thriving place, with numerous important manufacturing establishments, lighted by gas, and supplied with water through the Holly system. Its public buildings include the state insane asylum, a female seminary, a business college, and 16 churches. It is also the seat of the Kalamazoo

(Baptist) college, which in 1885 had 9 instructors, 54 students of the collegiate grade, and a library of 4,000 volumes. It ranks fourth among the towns in the state.

KALAMAZOO' RIVER, or KEKALAMAZOO (an Indian word signifying a boiling pot), is a river in s. Michigan. It is clear and narrow, and very rapid, and rising in the center of s. Michigan, flows westward through four counties over a bed of pebbles, limestone, or sand, emptying into lake Michigan 41 m. n. of the St. Joseph river, and 29 m. s. of Grand river. It is 200 m. long but only 90 m. in a direct line from source to mouth. At its mouth, which is an excellent harbor for vessels of 100 tons burden, it is 400 ft. in width, and from 10 to 15 ft. deep. There are four considerable towns on its banks, Marshall, Battle Creek, Kalamazoo, and Allegan; the latter, 38 m. from its mouth, is a depot for lumber; and up to this point the river is navigable at all seasons. On the banks are found the *mounds* that puzzle antiquarians. Thick forests grow along its borders, which in Allegan co. furnish excellent pine timber; in Kalamazoo and Calhoun counties it flows mostly through oak-openings. It supplies excellent mill-sites for manufacturing purposes.

KAL'BĖ, or CALBE, a t. of Prussian Saxony, in the government of Magdeburg, is situated 18 m. s. of the town of that name, on the left bank of the Saale. Spinning and weaving, with manufactures of paper, tobacco, and sugar, are here carried on. Pop. '80, 8,522.

KALE, or BORECOLE (Ger. *Kohl*), a cultivated variety of *brassica oleracea*, differing from cabbage in the open heads of leaves, which are used for culinary purposes as *greens*, and also as food for cattle. There are many sub-varieties, of which some are of a green and others of a reddish-brown or purplish color; some have the leaves comparatively plain, and others have them very much waved or curled, some also fringed or laciniated. Most of the kinds are biennial, like the cabbage, but some may be reckoned perennial, as the *Milan kale* (*chou de Milan*), and are frequently propagated by cuttings. The kind called *German greens* is one of the most delicate, and is very much cultivated in Britain, chiefly as a winter vegetable. The more the leaves are curled the more it is esteemed. The mode of its cultivation nearly agrees with that of cabbage.

KALE, SEA. See SEA KALE.

KALEI'DOSCOPE (from Gr. *kalos*, beautiful, *eidos*, image, and *skopeo*, I see), an optical instrument invented by sir David Brewster in 1817. It consists of a tube, through whose length pass two mirrors or reflecting planes, which are hinged together along one edge, and make with each other an angle which is an aliquot part of 180°, whilst the one end is fitted up with an eyeglass, and the other is closed by two glasses, at a small distance from each other, between which are placed little fragments of glass or other variously colored objects. The eye looking into the tube now perceives these objects multiplied as many times as the angle which the reflecting planes make with each other is contained in the whole circumference of a circle, and always symmetrically disposed; and the slightest shaking of the instrument produces new figures. There are various modifications of the kaleidoscope, by some of which its power is much increased; and it is not only a pleasing toy, but of great use to pattern-drawers and others, to whom it supplies endless varieties of figures.

KALENDAR. See CALENDAR.

KALENDS. See CALENDS.

KALER'GIS, DEMETRIUS, 1803–67; b. Candia; educated at St. Petersburg; distinguished himself in the war of Grecian independence, and was taken prisoner by the Turks. He was very active in the revolution of 1843–45, was general and adjutant of king Otho, and was for some time minister of war. In 1861 he was sent as ambassador to Paris.

KALEWALA. See FINNISH LITERATURE.

KALGAN, or CHANG KIAKAU, a populous Chinese city, 125 m. from Peking in a north-westerly direction, on the Sangho river, and on the line of the great wall. It comprises both a Tartar and a Chinese quarter, and is strongly fortified. Occupying a position on the high road to Kiachta, in Siberia, it is the seat of a trade which formerly amounted to $8,000,000 per annum, but which has declined since 1860, owing to the extension of trade privileges to the entire frontier.

KALGUEF, or KOLGUEV, an island of Russia, in the Arctic ocean, 240 m. in circumference; belongs to the government of Archangel, and is situated 115 m. e. of the northern extremity of the peninsula of Kanin. It is the resort of innumerable flocks of wild-fowl, especially eider-ducks, geese, and swans, which are caught in great numbers by the fowlers who visit the island every summer.

KALIDASA, the greatest dramatist and one of the most celebrated poets of India. He is known to the literary public of Europe especially through his drama *S'âkuntala*, which, first introduced to the notice of the western world by sir William Jones (1789), created so great a sensation throughout Europe that the early success obtained by Sanskrit studies in England and Germany may be considered due to this masterpiece of Sanskrit literature. Another drama of the same poet, and next in renown to *S'âkuntala*,

is the *Vikramorvas'î*, or the Hero and the Nymph. Besides these works, Hindu tradition ascribes to his authorship a third drama and several poems, which no European critic will believe could ever have sprung from a mind like that of Kâlidasâ. Prof. Lassen, in the *Indische Alterthumskunde*, passes the following judgment on this poet: "Kâlidâsa may be considered as the brightest star in the firmament of Hindu artificial poetry. He deserves this praise on account of the mastery with which he wields the language, and on account of the consummate tact with which he imparts to it a more simple or more artificial form, according to the requirements of the subject treated by him, without falling into the artificial diction of later poets, or overstepping the limits of good taste; on account of the variety of his creations, his ingenious conceptions, and his happy choice of subjects; and not less on account of the complete manner in which he attains his poetical ends, the beauty of his narrative, the delicacy of his sentiment, and the fertility of his imagination." But although we are enabled by his works to appreciate the merits of this poet, we know little of his personal history. That he lived at Ujjayinî or Oujein, and that he was "one of the nine gems of the court of Vikramâditya," is all that is related in regard to him. But as there have been several Vikramâdityas at Ujjayinî, his date is as uncertain as that of any personage of the ancient history of India. Dr. Bhâo Dâjî, in a learned and ingenious essay "On the Sanskrit Poet, Kâlidâsa" (*Journal of the Bombay Branch of the Royal As. Soc.*, Oct., 1860), has endeavored to identify Vikramâditya, the contemporary of Kâlidâsa, with Harsha Vikramâditya, and that the great poet would therefore have lived in the middle of the 6th c. of the Christian era.

KALIHA'RI DESERT. The Kalihari is a vast central and nearly uninhabited tract of country lying between Great Namaqualand and the Betjuana country, in South Africa, extending from the northern banks of the Gariep or Orange river to the latitude of 21° s., or the verge of the Ngami region, a distance of nearly 600 m., with an average breadth of about 350 m., and presenting some curious physical features quite distinct from other desert regions of the globe. It is a nearly waterless, sandy, but in many places well wooded region on which rain seldom falls, intersected by dry watercourses, with a substratum of a tufaceous limestone, and to all appearance formerly the bed of an immense lake. Livingstone considers it remarkable for little water and considerable vegetation, and therefore very different from the karroos of the Cape Colony, which have neither water nor vegetation except after heavy rains, and from the bare and sandy deserts of North Africa and Arabia. No mountains or elevations of any considerable height are found in the Kalihari, the general level of which may be considered as 3,000 ft. above the sea. The few springs or "sucking-places" which here and there are found are generally carefully concealed by the Bakillhari, a miserable wandering race of Betjuana Bushmen, who roam through the desert in quest of game, of the skins of which they make the fur robes called "carosses." The Kalihari has been crossed by C. J. Andersson and others, near its outskirts; but of its central parts very little is known. After heavy rains immense herds of elephants, rhinoceroses, and giraffes are found in its dense thickets, and feed on the succulent wild melons called "kengwe" which then abound there. In the n. part are immense forests of thorn-trees.

KALISCH, David, 1820–72, a German farce and song writer of ability, and founder of the *Kladderadatsch*, a humorous and satirical paper, published in Berlin, and now more than 30 years old (1880). His plays are very popular in Germany, and a collection of his songs has been published separately under the title *Berliner Leierkasten*.

KA'LISPELS, or Pends d'Oreilles, a tribe of Indians inhabiting portions of British America, Idaho, Washington territory, and Montana. They appear to have been peculiarly the subject of the characteristic treatment afforded the Indians by the American government, in being forced to submit to breaches of treaty stipulations, and to exasperating changes of habitat under U. S. executive direction. Formerly a wretched race of creatures, illy-fed and half-clad, their condition was essentially improved through the influence of the missions established among them about 1840 by father De Smét. Always peaceable, though brave and aggressive when molested, they became industrious, and cultivated their lands intelligently and with success. But the obligations which were entered into by the U. S. government in the treaty of 1855 were never honestly fulfilled, and the various bands were from time to time removed from their reservations, where they had cultivated lands and raised large numbers of cattle, horses, and hogs, and were driven to less eligible districts, and forced to begin life anew. In Montana there are said to be about 1000 members of this tribe; in Washington territory 300 or 400; and in Idaho 700. The tribe receives its name from the valley of Kalispel, e. of the Cascade mountains, where they have some time resided.

KA'LISZ, a Russian government, or district, in Poland, bordering on Prussia; 4,200 sq.m.; pop. '67, 601,029. Capital, Kalisz.

KA'LISZ, a t. of Poland, on the Prosna, in the government of the same name, 136 m. w.s.w. of the city of Warsaw. It is one of the oldest Polish towns, and was formerly the capital of a palatinate. Pop. '80, 20,280, who carry on an extensive trade. The adjoining county is the best-cultivated in the kingdom. Two famous battles were

fought here—the first between the Poles and Russians and the Swedes in 1706; the other between the Russians and Saxons in 1813.

KALIYUGA, in Hindu chronology, the fourth or last of the periods contained in a mahâyuga or great yuga (q.v.). It may be compared to the iron age of classical mythology. It consists, according to native imagination, of 432,000 solar-sidereal years, and begins 3,101 years before the Christian era. The relation of the four yugas being marked by a successive physical and moral decrement of created beings, the kaliyuga is the worst of all. "In the kri'ta (or first) age," Manu says, "the (genius of) truth and right (in the form of a bull) stands firm on his four feet, nor does any advantage accrue to men from iniquity. But in the following ages, by reason of unjust gains, he is deprived successively of one foot; and even just emoluments, through the prevalence of theft, falsehood, and fraud, are gradually diminished by one foot (i.e., by a fourth part)." The estimate in which this kaliyuga, our present age, is held by the modern Hindus may be gathered from one of their most celebrated Purânas, the Padma-Purân'a. In the last chapter of the Kri'yâyogasâra of this Purâna the following account is given of it: "In the kaliyuga (the genus of) right will have but one foot; every one will delight in evil. The four castes will be devoted to wickedness, and deprived of the nourishment which is fit for them. The Brahmans will neglect the Vedas, hanker after presents, be lustful and cruel. They will despise the scriptures, gamble, steal, and desire intercourse with widows. . . . . For the sake of a livelihood, some Brahmans will become arrant rogues. . . . The Sûdras will endeavor to lead the life of the Brahmans; and out of friendship people will bear false witness; . . . they will injure the wives of others, and their speech will be that of falsehood. Greedy of the wealth of others, they will entertain a guest according to the behest of the scriptures, but afterwards kill him out of covetousness; they are indeed worthy of hell. The twice-born (i. e., the first three castes) will live upon debts, sell the produce of cows, and even their daughters. In this yuga men will be under the sway of women, and women will be excessively fickle. . . . . In the kaliyuga, the earth will bear but little corn; the clouds will shed but little rain, and that, too, out of season. The cows will feed on ordure, and give little milk, and the milk will yield no butter; there is no doubt of that. . . . . Trees, even, will wither in twelve years, and the age of mankind will not exceed sixteen years; people, moreover, will become gray-haired in their youth; women will bear children in their fifth or sixth year, and men will become troubled with a great number of children. In the kaliyuga the foreigners will become kings bent upon evil; and those living in foreign countries will be all of one caste, and out of lust take to themselves many wives. In the first twilight of the kaliyuga people will disregard Vish'nu, and in the middle of it no one will even mention his name."

KALKASKA, a co. in s. Michigan, which embraces the head-waters of the Manistee river, the natural outlet to lake Michigan for the pine-timber section; 576 sq.m.; pop. '80, 2937. It is one of the five counties that constitute the Grand Traverse region. It is covered with a dense growth of hard-wood timber, and the soil is productive to a remarkable degree. Its forests, furnishing materials for building purposes, offer strong inducements to the settler. The streams abound in brook trout. Co. seat, Kalkaska.

KALLOCK, Isaac S. See page 889.

KALM, Peter, 1715–79; b. in Sweden; educated at the universities of Åbo and Upsala; was a botanist of distinction and reputation. He was a friend of Linnæus, who recommended him to the Swedish government, which, in 1748, dispatched him to North Ameriea for the purpose of making investigations in natural history. He remained abroad during three years, and on his return to Sweden published an account of his travels, which was translated into English and published in London, 1772. He became professor of botany, at Åbo, was a member of the Swedish academy of sciences, and author of a number of scientific works. The genus *kalma*, a native North American evergreen, was named in honor of prof Kalm.

KAL'MAR, a t. and sea-port on the s.e. coast of Sweden, capital of a læn of the same name, is situated on the Kalmar sound, opposite the island of Oland, and about 200 m. s.s.w. of Stockholm. It has a good harbor, a handsome cathedral, and a large and beautiful castle, in which, July 12, 1397, the treaty called the "Union of Kalmar," which settled the succession to the three northern kingdoms upon queen Margaret of Denmark and her heirs forever, was agreed to by the deputies of the three kingdoms. The union, nevertheless, lasted only till the death of Margaret (see Denmark, History of). The commerce of the town is considerable, and manufactures of sugar and tobacco are carried on. Pop. '80, 10,963.

KAL'MIA, a genus of plants of the natural order *ericeæ*, consisting of evergreen shrubs, mostly about 2 or 3 ft. high, natives of North America, with red, pink, or white flowers, generally in corymbs. The flowers are very delicate and beautiful, and the corolla is in the shape of a wide and shallow bell. Some of the species are frequent ornaments of gardens in Britain. They delight in a peat-soil. *K. latifolia*, the mountain laurel or calico bush of North America, occupies large tracts on the Alleghany mountains. It grows to the height of 10 ft., and the wood is very hard. It is narcotic and dangerous; the leaves are poisonous to many animals, and the honey of the flowers possesses nox-

ious properties. A decoction of the leaves has been used with advantage in cutaneous diseases.

KAL'MUCKS, or, as they call themselves, the Derben-Ueirat (the four relatives), and also designated by the name of Eleutes and Khalimik (apostates), are the most numerous and celebrated of the Mongol nations. They are divided into four tribes, the first of which, the *Khoskôts* (warriors), number nearly 60,000 families, and inhabit the country round the Koko-nur, which they consider the native country of the race. One portion of this tribe migrated to the banks of the Irtisch, and became subsequently incorporated with the second tribe, the Dzûngars; another portion migrated to the banks of the Volga, in the 17th c., and is found at the present day in the government of Astrakhan. The second tribe are the *Dzûngars,* who give the name to a large territory (Dzûngaria) in the w. of Chinese Tartary; at the present day they number about 20,000 families. The third tribe are the *Derbets* or *Tchoros,* who deserted Dzûngaria, and finally, to the number of 15,000 families, removed a few years ago to the plains of the Ili and the Don, where they are being rapidly incorporated with the Don Cossacks. The fourth great tribe of the Kalmucks are the *Torgots,* who, about 1660, separated from the Dzûngars, and settled in the plains of the Volga, whence they were called the *Kalmucks of the Volga;* but finding the Russian rule too severe, the majority returned to Dzûngaria.

No Mongol or Turkish race presents such characteristic traits as the Kalmucks; indeed, they answer exactly to the description given of them by Jornandes 13 centuries ago. when, under the name of Huns, they devastated southern Europe. The Kalmuck is short in stature, with broad shoulders and a large head; has small, black eyes, always appearing to be half shut, and slanting downwards towards the nose, which is flat, with wide nostrils; the hair is black, coarse, and straight, and the complexion deeply swarthy. The Kalmuck is considered to be the original type of the Mongol and Manchû races, and his ugliness is the index of the purity of his descent. They are a nomad, predatory, and warlike race, and pass the greater part of their lives in the saddle. Their usual food is barley-flour soaked with water, and their drink is the "koumiss" (made from fermented mare's milk). In 1829 Russia established a Kalmuck institute for the training of interpreters and government officials for the Kalmucks of Russia, and she has since been making great efforts to introduce civilization among them. Most of the Kalmucks are Buddhists, but a few have adopted Mohammedanism or Christianity.

KALNOKY, Gustave, Count. See page 889.

KALOC'SA, a t. of Hungary, near the left bank of the Danube, about 70 m. s. of Pesth. It contains a fortified bishop's palace, with a library of 30,000 volumes. Kalocsa is a steam-packet station on the Danube, and contains a pop., '80, of 15,789.

KALONG, a name originally Javanese, and belonging to one or more species of frugivorous bats (q.v.) inhabiting Java, but now frequently applied to all the frugivorous bats, the family *pteropidæ,* or at least to all the species of the genus *pteropus.* The *pteropidæ* are all large bats, and some of them are the largest of all the *cheïroptera.* They are called *roussette* by French naturalists, and often, popularly, flying fox by Europeans in the east. They are found in the East Indies, Japan, Australia, Africa, and South America. There are many species. Their food consists chiefly of soft fruits, as bananas, figs, etc. The Javanese kalong (*pteroptus Javanicus*) measures about 5½ ft. in expanse of wing. The head and body are more than a foot long. It is gregarious, and during the day great numbers may be seen hanging by their hinder claws, motionless and silent, on the branches of trees which they have selected for their abode. The body is covered with fur of a reddish-brown color. This and the other true *pteropi* have no tail, and a smaller number of vertebræ—24 in all—than any other mammalia. Some of the *pteropidæ* have a very short tail. The flesh of some of them is eaten, and one, inhabiting the Moluccas and isles of Sunda, has been called the eatable kalong (*P. edulis*). It is said to be white and delicate. Some of the species are migratory.

KALPA, in Hindu chronology, a day and night of Brahmâ, which, according to some, is a period of 4,320,000,000 solar-sidereal years, or years of mortals, measuring the duration of the world, and as many, the interval of its annihilation. The Bhavishya-Purân'a admits of an infinity of kalpas; other Purânas enumerate thirty. A great kalpa comprises not a day, but a life of Brahmâ.—In Vedic literature kalpa is a Vedânga. See Kalpa-Sûtra.

KALPA-SÛTRA is, in Vedic literature, the name of those Sanskrit works which treat of the ceremonial referring to the performance of a *Vedic* sacrifice. See Veda.—In Jaina literature it is the name of the most sacred religious work of the Jainas. See Jainas. It is chiefly occupied with the legendary history of Mahavîra, the last of their 24 deified saints, or Tîrthankaras, but contains also an account of other 4 saints of the same class. The name of the author was Bhadra Bâhu, and the work was composed, as Stevenson assumes, in the year 411 of the Christian era; but the conjecture of another writer places it 632 after Christ. It is held in so high respect with the Jainas that "of the 8 days in the middle of the rains which are devoted to the reading of those works esteemed peculiarly sacred, no less than 5 are allotted to the Kalpa-Sûtra." Stevenson, *The Kalpa-Sûtra and Nava Tatva* (Lond. 1848).

KALSOMINE, or Calcimine, a composition of zinc-white and glue sizing mixed with water, in which, by adding coloring matter, any color desired may be produced.

The process of kalsomining is very difficult, even for skilled painters. It requires great nicety in the preparation of the surface, care in compounding the mixture, and skill in applying it. For ceilings, mix ½ lb. of glue with 15 lbs. zinc; for walls, 1 lb. of glue with 15 lbs. of zinc. Paris white is sometimes used as a substitute for kalsomine.

KALU'GA, a government of Russia, lies immediately s.e. of that of Smolensk. Area, 11,780 sq.m.; pop. '79, 1,098,814. The surface is flat; the soil stony, sandy, and only moderately fertile. More than half of the province is under forest. It is watered by numerous rivers, the chief of which is the Oka. The principal occupation of the inhabitants is the cultivation of hemp. Sail-cloth, which is not only sent to the ports of Russia and Europe, but also largely exported to America, is the chief article of manufacture. Colored cloths for the China trade are also made. The government of Kaluga is divided into 11 districts.

KALUGA, chief t. of the government of the same name, is situated on the right bank of the Oka, in lat. 54° 31′ n., long. 36° 20′ east. From the 14th to the 18th c. its stronghold was a great protection against the invasions of the Lithuanians, the Tartars of the great horde, and especially against the Crimean Tartars. Situated in the center of the empire and on a navigable river, it carries on an extensive corn-trade, the corn being sent down the Oka to Nijni-Novgorod, and thence up the Volga, the Volga canals, and the Neva, to St. Petersburg and the Baltic ports. The value of this branch of trade is 22,000,000 rubles (£3,500,000). There are several leather and other factories in the town. Pop. '80, 38,608. Kaluga has for many years been a place of banishment for political offenders; and used to be the residence of Schamyl, the Circassian chief.

KA'MA, a navigable river of European Russia, the principal affluent of the Volga, rises in the government of Viatka, and after a s.w. course of 1100 m., joins the Volga in the government of Kasan, 50 m. above the town of that name. Its chief tributaries are the Viatka, the Tchoussovaia, and the Bielaia. This river is navigable 40 m. below its source, and the navigation commences in the beginning of May. The annual value of the goods conveyed on the Kama is estimated at £8,000,000. The river abounds in fish, especially salmon.

KAMA, or KÂMADEVA, the Hindu god of love, and one of the most pleasing creations of Hindu fiction. In Sanskrit poetry, especially that of a later period, he is the favorite theme of descriptions and allusions, and mythology exalts his power so much that it allows even the god Brahmâ to succumb to it. Acccording to some Purânas he was originally a son of Brahmâ; according to others, a son of *Dharma* (the genius of virtue), by *S'raddhá* (the genius of faith), herself a daughter of *Daksha*, who was one of the mind-born sons of Brahmâ. The god S'iva being on one occasion greatly incensed at Kâma, reduced him to ashes; but ultimately, moved by the affliction of Rati (voluptuousness), the wife of Kâma, he promised her that her husband should be reborn as a son of *Kr'ishna*. The god Kr'ishna, accordingly, having married Rukminî, she bore him *Pradyumna*, who was the god of love. But when the infant was six days old it was stolen from the lying-in chamber by the terrible demon S'ambara; for the latter foreknew that Pradyumna, if he lived, would be his destroyer. The boy was thrown into the ocean and swallowed by a large fish. Yet he did not die, for that fish was caught by fishermen and delivered to *Mâyâvatí*, the mistress of S'ambara's household; and when it was cut open the child was taken from it. Whilst Mâyâvatî wondered who this could be, the divine sage, Nârada, satisfied her curiosity, and counseled her to rear tenderly this offspring of Kr'ishna. She acted as he advised her; and when Pradyumna grew up, and learned his own history, he slew the demon S'ambara. Mâyâvatî, however, was later apprised by Kr'ishna that she was not the wife of S'ambara, as she had fancied herself to be, but that Pradyumna—in fact, another form of Rati, who was the wife of Kâma in his prior existence.—Kâma is described or represented as holding in his hands a bow made of sugar-cane and strung with bees, besides five arrows, each tipped with the blossom of a flower which is supposed to conquer one of the senses. His standard is, agreeably to the legend above mentioned, a fabulous fish, called Makara; and he rides on a parrot or sparrow—the symbol of voluptuousness. His epithets are numerous, but easily accounted for from the circumstances named, and from the effects of love on the mind and senses. Thus, he is called *Makaradhwaja*, "the one who has Makara in his banner;" *Mada*, "the maddener," etc. His wife, as before stated, is *Rati;* she is also called *Kâmakalâ*, "a portion of Kâma," or *Prîti*, "affection." His daughter is *Trishâ*, "thirst or desire;" and his son is *Aniruddha*, "the unrestrained."

KAMBA'LIA, or SERAIA, also called Serryah, a t. and port in Kattywar, w. India, on the gulf of Cutch, considered one of the most available and safest harbors of that coast.

KAMBALU'. See CAMBA'LUC.

KAMEE'LA, or KAMALA, a violently purgative medicine, said to be a specific against tape-worm, prepared from a plant of the order *euphorbiaceæ*, the *rottlera tinctoria*. It grows wild in Abyssinia, Australia, eastern China, southern Arabia, and India. This remedy has long been employed by the British soldiers in Hindustan in cases of *tænia*, and with great success.

KAMEHA'MEHA I., called Nui (the great), 1753–1819; the first king of the Hawaiian islands. On the death of his uncle, Kalanio Ku, king of the island Hawaii in 1781, he became head-chief of the western part. In self-defense he waged war, first with the chiefs of his own island, and then with those of the other islands, which resulted in bringing the whole group under his control, and he beeame king in 1809. He was a man remarkable for mental energy, physical strength, and a noble carriage, but mild, frank, and generous. He built forts and mounted guns upon them. He had soldiers armed with muskets, and drilled after the fashion of Europe. He created a navy, the keel of the first ship having been laid for him by Vancouver in 1792, and before his death he had 20 ships, some of them copper-bottomed. He appreciated the character of Vancouver, whose frequent visits exerted a good influenee upon him. Under his reign some of the chiefs became intelligent, conversed well in English, and assumed many of the habits of civilized life. He encouraged agriculture, commerce, and the mechanic arts. He partially abolished the taboo system and human sacrifices. His reign was remarkable for the prevalence of peace, security, and order. He died only a few months before a Christian mission embarked at Boston for the islands. He left two sons and one daughter, his eldest son, Liholiho, by his wife Keopuolani, succeeding him.

KAMEHA'MEHA II., called Liholiho Iolani, second king of the Hawaiian islands, 1797–1825. Kaahumanu, the favorite wife of his father, was his premier, and shared with him the government until her death. He completely abolished taboo and idolatry, and the missionaries, on reaching the islands, reeeived the astounding intelligence that the gods had been burned and the whole system of idolatry destroyed. The king permitted the missionaries who arrived in 1820 to remain at Kailua, and assigned a house belonging to the late king for their temporary residence. In Nov., 1823, he embarked for England and the United States, accompanied by his wife Kamamalu and two ehiefs, leaving the government in the hands of Kalaimoku and Kaahamanu, and naming his brother Kauikeaouli as his suceessor if he should not return. They were well received by the British government, but the king and queen both died without having seen George IV. or his ministers of state. Their remains were taken to the islands in an English frigate. Though of intemperate habits, Liholiho declared his belief in Christianity, attended public worship, and recommended the same to his people. He was a diligent student, decided, and enterprising in character. He was succeeded by his brother Kauikeaouli as Kamehameha III.

KAMEHAMEHA III., called Kauikeaouli, third king of the Hawaiian islands, 1814–1854. He did not fully assume the royal power until 1833, the kingdom being under the regency of Kaahumanu, the queen dowager of Kamehameha I., and Kalaimoku, and on the death of Kaahumanu, in 1832, Kenau, the daughter of Kamehameha I., became regent, and afterwards premier of Kamehameha III. In his youth Kamehameha was dissipated, but through the influence of the missionaries under whose instruction he was plaeed when nine years of age, he became a wise and useful man. Though not always temperate he had excellent points of character, and was beloved by his people. Previous to 1838 the government was a despotism, but in 1840 he gave his people a written constitution, recognizing the three grand divisions of king, legislature, and judges; and under his reign the Christian religion became the established national religion of the Hawaiian islands. Great Britain, France, and the United States acknowledged the independenee of his government, and treaties were made with these and other powers. Edueation, agriculture, and commerce in his reign were prosperous. He was greatly harassed by the efforts of foreign seamen, led by European and American officers, to violate the laws, and of English and French officers to introduce French Roman Catholic priests into the islands. But he defeated their plans. He was called Kamehameha the good.

KAMEHAMEHA IV., called Alexander Liholiho, fourth king of the Hawaiian islands, 1834–1863; b. Honolulu; the nephew and adopted son of Kamehameha III., who appointed him his heir and suceessor under the name of Alexander Liholiho. With his brother Lot Kamehameha he visited, in 1850, England, France, and the United States, and in 1854, soon after his return, he ascended the throne. In 1856 he married Emma, the daughter of a native ehief and an English woman, and the adopted daughter of Dr. Rooke, an English physician. Excessive grief for the loss of his infant son shortened his days. He was a man of talents, better educated than his predecessors, of prepossessing manners, and loved by the people. He was much interested in the progress of the Reformed Catholic mission, and by his personal solicitation of subscriptions was instrumental in the establishment in 1860 of the Queen's hospital in Honolulu. He translated the Book of Common Prayer into Hawaiian.

KAMEHAMEHA V., called Lot, fifth king of the Hawaiian islands, brother of Kamehameha IV., and called Lot Kamehameha, 1830–72. He was dissipated in his youth, but reformed before he became king. Like his brother, he was educated and accomplished, and, having acquired experience as minister of the interior and commander of the forces, he was well qualified to administer the government. He refused to take the oath to the constitution of Kamehameha III., considering it too democratic, and proclaimed one more absolute, which, after violent opposition, was accepted. He was a man of strong

will and great courage, but superstitious. Dying unmarried, the direct line of the Kamehamehas ended with him. He named no successor, and prince Lunalilo, a chief of a high family, was appointed king.

KA'MEKE, Georg Arnold Carl von, b. Prussia; entered the army in 1834, and in 1850 was raised to the rank of captain. He was sent to Vienna in 1856 as attaché to the Prussian embassy, and remained there two years. In 1858 he was appointed chief of the engineering department, with the rank of lieut.col. He was placed in command of a regiment of infantry in 1861, and rose to the position of maj.gen. and chief of staff, leading the 2d army corps in the war with Austria in 1866. His services were rewarded by a decoration, and in 1867 he was promoted to the office of inspector-general and in the following year to lieut.gen. On Aug. 6, 1870, during the Franco-Prussian war, he made the direct attack on Saarbrücken in command of the 4th division (part of the 7th army corps), leading the assault in person. By him, also, the movement was undertaken that resulted in the capture of the heights of Spicheren; he was summoned from the frontier to Paris, Jan., 1871, and given charge of the engineering operations of the siege. After peace was declared he returned to his former position of inspector-general, and was made minister of war in 1874.

KAMENZ. See Camenz.

KAMI, or Happy Spirits, are in Japanese mythology certain spirits or divinities who founded the first terrestrial dynasty. The Japanese believe that the spirits of human beings survive the body, and receive reward or punishment according to the conduct of this life. If a man's life has been distinguished for piety, patriotism, or good works, they deify him after death as a *Kami*, and thus the number of these deities is indefinite. Some of them preside over the elements and powers of nature. The worship of these demigods or Kami is called *Kami-no-mitsi*, or *the way of the Kami*. They have chapels in all parts of the empire called *mias*, which are always built in picturesque localities, generally among groves of trees, usually upon a hill, natural or artificial, with a massive stone stairway leading to the top. These mias were originally commemorative chapels, erected in honor of Japanese heroes. The prince of the province where the hero was born, or had performed his deeds, had the charge of keeping the chapel in repair; there was no priest to officiate, and no privileged class interposed between the worshiper and the being worshiped.

KAMINETZ-PODOLSK, or Podolsk, a t. of w. Russia, capital of the government of Podolia, is picturesquely situated near the Austrian frontier, on a steep rock above the river Smotritza, an affluent of the Dniester. Its foundation dates from the earliest times. Pop. '80, 22,611. The most noteworthy buildings are the Gothic cathedral and the Dominican church. The fortifications, which were razed in 1812, have been renewed. Kaminetz-Podolsk was, before the partition of Poland, the strongest bulwark of that country against the Turks.

KAMOURAS'KA, a co. in Quebec, Dominion of Canada, on the St. Lawrence river, whence it extends to the state of Maine, the range of mountains which form the source of the river De Loup and the Androscoggin being a part of its eastern boundary; 1017 sq.m.; pop. '81, 22,181. chiefly of French descent. Its surface is much broken. It is traversed by the St. Francis, Kamourasca, and Walloostook rivers, and by a division of the Grand Trunk railway. The principal products are oats, rye, barley, wheat, and potatoes.

KAMPEN, one of the prettiest towns of the Netherlands, in the province of Overyssel, is situated near the mouth of the Yssel, in the Zuyder Zee. Here a bridge 790 ft. long, and upwards of 20 ft. broad, extends across the river. Though formerly of greater importance, it still carries on a considerable general trade. Pop. 15,400.

KAMPEN, Nikolaas Godfried van, 1776–1839; b. in Holland; obtained his first literary impressions in a bookstore in which he worked as an apprentice. He studied languages and taught German, and at the age of 30 was professor of the Dutch language, literature and history in the university of Leyden. He also edited the Leyden *Gazette*, and wrote voluminously on many subjects. In 1831 he published *Geschiedenis der Nederlanden buiten Europa*.

KÄMPFER, or Kaempfer, Engelbrecht, 1651–1716; b. Germany; was a medical student at Königsberg, and visited Persia as secretary to the Swedish ambassador. Having received an appointment as surgeon to the Dutch East India company, in its naval service, he accompanied the fleet, to which he was appointed, to the East Indies and Japan. He returned to Europe in 1693, and devoted himself to the preparation of his voluminous notes for a comprehensive history and description of the empire of Japan and the kingdom of Siam. It is a curious fact in literary history that this important work was never published in Dutch, and that from the first edition, published in London in 1727, were made the existing French and German translations.

KAMPTU'LICON, the name given to a kind of floor-cloth, which is said to be made of india rubber and cork; much of it, however, consists of oxidized linseed oil and cork. The cork is reduced to a state resembling very fine sawdust, and kneaded up with the

real caoutchouc, or with the artificial kind made of oxidized linseed oil, the whole being kept very soft by heat. The mass is then made into sheets by passing through cylinder rollers heated with steam. The sheets, when cold, are ready for use, when no ornamental surface is required; but very excellent designs may be painted upon it, the same as upon ordinary floor-cloth. Kamptulicon, notwithstanding the ease with which it is made, is more expensive than the floor-cloth made by painting hempen or linen fabrics; it has, however, qualities which render it very valuable for special purposes; its elasticity to the tread not only makes it agreeable to walk on, but it is noiseless, and is consequently well adapted for hospital passages and other positions in which quiet is desirable; it is also impervious to damp, and thereby well suited to damp stone floors. See LINOLEUM.

KAMPTZ, KARL ALBERT CHRISTOPH HEINRICH VON, 1769–1849; b. Germany; studied law at Göttingen, and rose to a high judicial position. For 12 years he was minister of justice of the kingdom of Prussia. He incurred the animosity of the students and of the more liberal Germans engaged in the political movements of the time, and his important work, the *Codex der Gendarmerie*, was publicly burned by the students of Wartburg.

KAMTCHAT'KA, PENINSULA OF, forms the s.e. extremity of Siberia, from which it stretches southward, extending in lat. between 51° and 60° n., and in long. between 155° 40′ and 164° 20′ east. It is 725 m. long, and averages 190 m. in breadth. A chain of volcanic mountains traverses the center of the peninsula, and gives rise to the rivers, of which the Kamtchatka is 150 m. in length. There are about 14 volcanoes in the peninsula, the most remarkable of which—the volcano of Plutchevsky—is 16,000 ft. high. This mountain now only emits smoke and embers; but in former times, eruptions used to take place every seven or eight years. The soil, in general, is stony; but there are many tracts of mountain-slope which are arable. Agriculture, however, is much hindered by untimely frosts, periodical rains, and sometimes by multitudes of mice and rats. The bread required by the inhabitants of the fortresses of Petropaulovsk and Tagil is supplied from Okhotsk. The principal occupations of the inhabitants are fishing and hunting. The most valuable domestic animal is a peculiar kind of dog which never barks. Kamtchatka was annexed to Russia at the end of the 17th c., after the expedition of the Cossack chief Atlasof. Pop. 10,000, made up of Kamtchadales, Kourdetri, Omototzi, and Russians. The Kamtchadales—the preponderating race of the inhabitants—live mostly in the south. They are small in stature, with a large head, broad face, black hair, small eyes, broad shoulders, and hanging lips and stomach. Formerly they lived in tents made of branches; they now dwell in huts. They have nominally embraced Christianity, but retain much of their savage nature and superstitions. Nijni-Kamtchatsk, the chief town of the government, is situated on the river Kamtchatka. The fort of Petropaulovsk, with a fine harbor covered with ice only during a brief period of the year, is most picturesquely situated, and enjoys a healthful climate.

KAMYSHIN, a t. of Russia, in the government of Saratov, 120 m. below the town of that name, on the right bank of the Volga, lat. 50° 5′ n., long. 45° 25′ east. It possesses '80, 16,710 inhabitants, who carry on a considerable trade in corn.

KANABEC, a co. in e. Minnesota ; 540 sq.m.; pop. '80, 505. The largest portion of the surface is covered with forests of sugar-maple, pine, etc. The soil produces wheat, oats, and grass. It is drained by the Grindstone and Knife rivers. Valuation of real and personal estate, $500,000. Capital, Brunswick.

KANAGA'WA, a t. of Japan and the shipping port of Yedo. It was opened (together with Hakodadi and Nagasaki) to British subjects July 1, 1859, by the treaty of Aug., 1858. It is situated on the northern edge of a bight on the western side of the great bay of Yedo, and about 16 m. from that city. Here was located for a time the official section of the foreign community which, through the maneuvers of the Japanese, has been established, not at Kanagawa, but at Yokohama, on the opposite point of the bay, and in a more isolated situation. Kanagawa has a larger foreign trade than any other port of Japan. In 1874 the imports amounted to £3,343,260; the exports to £2,515,715. The chief imports are cotton and woolen goods; the chief exports, silk and tea. In 1872 Kanagawa was lighted with gas. Pop. 60,000.

KANAGA'WA (*ante*). See YOKOHAMA.

KANARIS, KONSTANTIN, a native of the isle of Ipsara, distinguished for his exploits in the Grecian war of independence, and particularly for the destruction of Turkish vessels by fire-ships. He was master of a small merchant-vessel before the commencement of the war. In 1822 he blew up the Turkish admiral's ship in the strait of Chios, and thus avenged the cruelties which the Turks had perpetrated on the Greeks in that island. In Nov. of the same year he burned the Turkish admiral's ship in the harbor of Tenedos. His native isle of Ipsara having been ravaged, he took revenge, Aug. 17, 1824, by burning a large Turkish frigate and some transport-ships which were carrying troops to Samos, and thereby saved Samos from the calamity which Chios and Ipsara had endured. In 1825 he formed the bold design of burning the Egyptian fleet in the harbor of Alexandria, where it lay ready to carry troops to the Peloponnesus, and it

appears that only an unfavorable wind springing up prevented his success. He was appointed to important commands by the Greek president, Capo D'Istrias, and in 1848 and 1849 was war minister of Greece, and president of the cabinet. He took part in the revolution of 1862, and held office repeatedly under the new king. He died Sept. 14, 1877.

KANA'WHA, a co. in West Virginia, formed in 1789, of two counties, Greenbrier and Montgomery, pop. in '80, 32,466—2,869 colored; area, 1150 sq.m.; co. seat, Charleston or Kanawha Court-house, which is the capital of the state, 308 m. w. of Richmond. The uplands, and the banks of the Kanawha river (Kanawha, in the Indian dialect signifying *the river of the woods*), are covered with a dense growth of timber. Fine sandstone is found in extensive ledges, and inexhaustible beds of bituminous coal. Salt is an important article of export; and the water is obtained by boring at a depth of from 300 to 500 ft. below the bed of the Kanawha river. The brine invariably rises to a level with the river. The Elk, Coal, and Pocatalico rivers water wide sections of the county, and the Ohio and Chesapeake railroad crosses it. Tobacco is one of the chief staples; other products are: corn, wool, oats, pork, and sweet potatoes. The manufactures include saddlery and harness, woolen goods, cooperage, flour, and lumber.

KANAWHA, Great. See Great Kanawha.

KANDAHAR'. See Candahar.

KANDAVU, one of the Fiji Islands (q.v.).

KANDIYO'HI, a co. a little w. of the centre of Minnesota, about 850 sq.m.; pop. '80, 10,159. It has an undulating surface, diversified by forests of oak, elm, etc., and with many small lakes. The soil is of an excellent quality, producing wheat, oats, grass, etc. The St. Paul and Pacific railroad passes through. Valuation of real and personal property, $1,500,000.

KANDY, or Candy, an important t. in Ceylon (q.v.), 7° 20′ n. lat., 80° 50′ e. long.; pop. 3,000. It was formerly the capital of the king of Kandy's dominions, and the palace of the kings, though now much dilapidated, covers a considerable space, and was formerly a building of great magnificence. The ruined temple and tombs of the kings are objects of much interest to travelers. Kandy is 65 m. from the town of Colombo, and is situated in the midst of a number of steep hills, whose lofty summits are covered with jungle and very unhealthful. The houses are of mud and thatched, excepting those of the chiefs, which are tiled and whitewashed. The principal street is about 2 m. long.

KANE, a co. in n.e. Illinois; 540 sq.m.; pop. '80, 44,956. It has an undulating surface and a fertile soil. A considerable portion of the county is prairie. It is intersected by the Chicago and North-western, the Chicago, Burlington and Quincy, and the Chicago and Iowa railroads. Its staple productions are wheat, corn, oats, hay, flax, butter, and pork. Valuation of real and personal estate, $15,000,000. It contains the cities of Aurora and Elgin. Capital, Geneva.

KANE, a co. in s. Utah, bordering upon Arizona; intersected by the Colorado and partly drained by the Rio San Juan; pop. '80, 3,085. A considerable portion of its surface is mountainous. The soil produces wheat, corn, and pasturage for sheep. Valuation of real and personal property, $400,000. Capital, Toquerville.

KANE, Elisha Kent, M.D., a celebrated Arctic explorer, was b. in Philadelphia, United States, Feb. 3, 1820; entered Virginia university in 1836, afterwards studied medicine, and entered the navy as a surgeon, in which capacity he visited China, India, the East Indies, and, under leave of absence, Arabia, Egypt, Greece, and Western Europe. Soon after returning home he was ordered to the w. coast of Africa in May, 1846, but being attacked by fever, was compelled to return in the following April. He was then transferred to the military staff, and served in Mexico. In May, 1850, he commenced his career of Arctic discovery as surgeon, naturalist, and historian to the first Grinnell expedition. In the spring of 1853 he was again sent out, this time as commander of a second Grinnell expedition, in which he achieved important results. These results are fully detailed in his *Second Grinnell Expedition in Search of Sir John Franklin* (2 vols. Philadelphia, 1856). On his return in the autumn of 1855, honors showered on the fortunate adventurer; he received gold medals from the queen of Great Britain, the royal geographical society of London, the American congress, and the New York legislature; but his health, which had been precarious since 1844, was rapidly failing, and after a visit to London, where he grew rapidly worse, he sailed to Havana, where he died Feb. 16, 1857. His life has been written by W. Elder, M.D. (8vo, Philadelphia, 1857).

KANE, Elisha Kent (*ante*). See Polar Expeditions.

KANE, Sir Robert, M.D., a celebrated chemist, was b. in Dublin in 1810. He was educated for the medical profession, and in 1832 was received as a member of the royal Irish academy, and in the same year projected the *Dublin Journal of Medical Science,* which at first treated only of chemical and pharmaceutical subjects. In 1840 he received the gold medal of the royal society of London for his researches into the coloring matter

or lichens. From 1844 till 1847 Kane was professor of natural philosophy to the royal Dublin society, and in the last-mentioned year received the Cunningham gold medal of the royal Irish academy for his discoveries in chemistry. In 1846, he originated the museum of industry in Ireland, was appointed its first director, and the same year received from the lord-lieutenant the honor of knighthood. He held for a number of years the office of president of the queen's college, Cork, which he resigned in 1864. His important works are: *Elements of Chemistry* (1841–42, 1849), a work of widely acknowledged merit; *Industrial Resources of Ireland* (1844), being the substance of a lecture delivered in the previous year, and published at the expense of the royal society of Dublin. He d. 1878.

KANGAROO', *Macropus*, a genus of marsupial quadrupeds, of which there are many species, almost all Australian, although a few are found in New Guinea and neighboring islands. The genus, which some naturalists subdivide, is the type of a family of *macropidæ*, including also the kangaroo-rats or potoroos (q.v.), which have canine teeth in the upper jaw, whilst the kangaroos have no canine teeth, and in their dentition generally, and in their digestive system, make a nearer approach than any other marsupial quadrupeds to the ruminants; the potoroos, on the other hand, approaching the rodent type. Kangaroos are said sometimes to ruminate. The stomach of kangaroos is large, and is formed of two elongated sacs. They are entirely herbivorous. The *macropidæ* are all characterized by great length of the hind legs, whilst the fore legs are small; but the radius allows a complete rotation of the fore-arm, and they make use of the fore feet as organs of prehension, and for many purposes, with great adroitness. The fore feet have five toes, each armed with a strong curved nail; the hind feet have four toes—one very large central toe, with a very large solid nail. The hind feet are very long, through an extraordinary elongation of the metatarsal bones. The tail is very long, thick, strong, and tapering, and is of great use in balancing the animal in its leaps, and also for sustaining the body in its ordinary erect sitting posture, in which it uses the hind legs and the root of the tail as a tripod. In this posture, also, it usually walks by the hind legs alone. The head is in form somewhat like that of a deer; the ears moderately large, and oval; the eyes large and the aspect mild.

The Great Kangaroo, *M. giganteus*, is generally about 7½ ft. in length from the nose to the tip of the tail, the tail being rather more than 3 ft. in length, and fully a foot in circumference at the base. The height of the animal is rather more than 50 in. in the erect sitting posture already mentioned, but it sometimes raises itself on its toes to look around it, and its height is then greater than that of a man. The Woolly Kangaroo or Red Kangaroo, *M. laniger*, rather exceeds it in size. The great kangaroo was first discovered in Cook's first voyage, June 22, 1770, and until that time it may almost be said that kangaroos were unknown to Europeans, although a New Guinea species (*M. Brunii*) had been described by Le Brun in 1711. It is of a grayish-brown color, the fur moderately long and moderately soft. It is found in many parts of Australia and in Van Diemen's land. It sometimes attains the weight of 160 lbs., or upwards. The flesh is highly esteemed, and it is much sought after by the colonists, so that it is now rare in regions where it was once abundant. It is not properly gregarious. The kangaroos are all timid animals, making their escape from their pursuers by extraordinary leaps. The great kangaroo often proves too swift for grey-hounds. When driven to bay it sometimes kills a dog by a single stroke of its hind leg, the great nail ripping him open at once. Some of the kangaroos inhabit open plains, some are more generally found in forests, some are frequent on the snowy summits of the highest Australian mountains. They are of very various size; some are not much larger than a rabbit. They are easily tamed; some species have been brought to Britain, and have bred in zoological collections, but have not yet been properly naturalized.

The exceeding immature state in which young kangaroos are born, and the manner in which they are nourished, fall to be noticed in the article Marsupiata. Ere they finally desert the pouch of the mother, the young may be seen poking their heads out of it and nibbling the herbage among which she moves.

KANGAROO APPLE, a species of Solanum (q.v.), (*S. laciniatum*), with a somewhat shrubby succulent stem, smooth pinnatifid or entire leaves and lateral racemes of flowers; a native of Peru, New Zealand, Australia, and Tasmania, in which latter countries its fruit is called kangaroo apple, and is used as food. When unripe, it is acrid, and produces a burning sensation in the throat; but when perfectly ripe, it is wholesome.

KANGAROO GRASS, *Anthistiria australis*, the most esteemed fodder-grass of Australia. It grows to a height much above that of the fodder-grasses of Britain, affords abundant herbage, and is much relished by cattle. The genus is allied to *Andropogon*, and has clusters of flowers with an involucre. The awns are very long and twisted, both in the kangaroo grass and in a nearly allied species, *A. ciliata*, which is one of the most esteemed fodder-grasses of India.

KANGAROO ISLAND, in south Australia, at the mouth of the gulf of St. Vincent, in lat. 36° s., long. 137° e. Its length from e. to w. is 95 m., and its width generally about 25 m.; 1970 sq. miles. The surface is extensively covered with bushwood, with a

few trees. It has numerous salt lakes. It received its name from the number of kangaroos found there by its discoverer, capt. Flinders.

KANGHOA, or KANG-WA, Japanese KOKWA, a well-wooded, rocky, and mountainous island off the western coast of Corea, between n. lat. 37° and 38°, and long. e. from Greenwich, 126° and 127°. It is about 20 m. long, and 9 or 10 wide, of an elongated oval shape, having an area of 160 sq. miles. The soil is very fertile, producing rice, tobacco, sorghum, maize, barley, beans, cabbage, chestnuts, etc. This island is scoured on its eastern side by the cold, rapid, and turbulent current of the Han river, the largest in Corea, whose sources are in the high mountains along the e. coast. The city of Kanghoa, with a pop. of about 12,000, in the eastern center of the island, has from ancient times been the refuge of the royal family during foreign invasion or civil war. During the Mongol invasion it was the national capital. Chinese pirates have greatly troubled the inhabitants for centuries. In Oct., 1866, the French naval expedition, under admiral Roze, made rendezvous off the island, and attacked Kanghoa city in force, in revenge for the murder of nine French Jesuit missionaries in Seoul a few months before. The fortifications, consisting mainly of a crenellated wall 15 ft. high, defended by arrows, jingols, and matchlocks, were stormed by scaling parties, the gates broken in with axes, and the place captured after some slaughter. About 80 bronze and iron cannon of small caliber, 6,000 matchlocks, the official archives of the city, large food-supplies, $32,000 worth of silver, and a valuable library of books were captured; besides large quantities of miscellaneous war material. Flushed by success, a party of 160 marines attempted to capture a fortified monastery a few miles s. of the city, which had been garrisoned by a regiment of native tiger-hunters. Upon the first assault nearly one-fourth of their number were disabled, and a retreat was ordered. The next morning, after one week's stay in Corea, the admiral suddenly gave orders to evacuate the island. The French government did not approve of the expedition, and Bellonet, the French minister who had ordered it, was recalled. The effect of this ill-planned raid was disastrous all over the east, French prestige suffered greatly, and the massacre at Tientsin followed, June 2, 1870. This frightful event was believed to have gained its first impetus from the unfortunate issue of admiral Roze's campaign in Corea. The American expedition sent in 1871 to make a treaty with Corea if possible, and inquire into the affair of the *General Sherman* (see PING YANG), arrived off Boisseé (Woody) island May 30. On June 1 the *Palos* and *Monocacy*, with four steam-launches, were dispatched up the river, and while turning a rocky point were fired on by the Coreans. Only one of the Americans was hurt, and the forts were shelled and silenced at once. Eight days later an expedition of chastisement was dispatched against the forts on the Kanghoa side of the river. The force consisted of 759 men, 2 extra-armed gun-boats, and 4 steam-launches. After forty-eight hours' absence from the anchorage, eighteen of which were spent on land, during which five forts were attacked and captured, the Americans returned victorious, having lost three men killed and ten wounded, among the former lieut. McKee, who, like his father in Mexico, lost his life as he entered a fort leading his men. Fifty flags, 481 cannon, and many trophies were captured and the forts dismantled. About 400 Coreans lost their lives. The forts were on the rocky promontories jutting into the river, whose violent current made naval maneuvers extremely difficult. The whole fleet, under rear-admiral John Rodgers, with minister A. A. Low, then returned to Chifu (see report of the U. S secretary of the navy, 1871). On Sept. 19, 1875, the Japanese gun-boat, *Unyo-kan*, while on her way to Newchang, China, stopped at Kokwa or Kang-hoa island to procure water. Her men were fired on by the Corean garrison, who evidently mistook the Japanese mariners for French or Americans. The Japanese, on the 20th, attacked the fort (Yeso), and without loss to themselves killed 24 of the garrison and took the fort. This event led to the treaty expedition sent later, under Kuroda, by which the two nations have entered into commercial relations.

KANGRAH, an extensive hill fort in the northern part of the Punjab, s.w. of the Himalaya mountains, between the Beyah and the Rauvy rivers. The fortress was taken by Mahmoud of Ghizni, who carried off immense riches; retaken by the rajah of Delhi in 1043, and subsequently, after a long siege, by the emperor Akbar. At the beginning of the present century it belonged to Sansa Chand, who surrendered it to Runjeet Singh. When the English obtained possession of the Punjab the country in the vicinity of Kangrah was chosen for the cultivation of the tea-tree, and there is now an extensive plantation at the base of the Chamba range of hills.

KANIZSA, the name of two towns in Hungary.—Nagy (or Gross) Kanizsa, a market t., and once an important fortress, in the co. of Szalad, 120 m. s. of Vienna, with which it is connected by railway. It has several churches, a monastery, town-house, etc. There is a considerable trade in cattle. Pop. '80, 18,398.—Kanizsa Magyar, a market t. in the co. of Bacs, in a fertile district on the Theiss, 15 m. s.s.e. of Szegedin. It has several churches, a synagogue, high school, etc., and a trade in corn and cattle. Pop. 8,855.

KANKA'KEE, a co. in n.e. Illinois, on the Indiana border, and drained by the Kankakee and Iroquois rivers; nearly 600 sq.m.; pop. '80, 25,047. The land is chiefly prairie, interspersed here and there with swamps. It is mainly an agricultural county,

its chief productions being wheat, corn, oats, potatoes, flax, butter, and cheese. Not less than four important railroads pass through it. Capital, Kankakee city.

KANKAKEE CITY, the capital of Kankakee co., Ill., on the river of the same name. It is 55 m. s.w. of Chicago, and on the Illinois Central at its junction with the Cincinnati, Lafayette and Chicago railroad. Pop. '80, 5,809. It contains 13 churches, the usual county buildings, 2 banks, 2 foundries, 1 flour mill, 1 woolen mill, 3 carriage factories, and 4 weekly newspapers.

KANKARI, a t. of Asia Minor, in the pashalic of Anatolia, 65 m. n.e. of Angora, on an affluent of the Kizil-Irmak. There are barracks, and a castle on a neighboring height. Pop. about 18,000.

KANO′, a great manufacturing and mercantile t. and capital of a province of the same name, in the state of Houssa, Central Africa, stands in lat. 12° 2′ n., and long. 8° 22′ east. The province is estimated to contain 500,000 inhabitants, and from its beauty and wealth has been called the "Garden of Central Africa." The wall which surrounds the town of Kano is 15 m. in circuit, and between it and the town, which is circular in shape, and is about 3 m. in diameter, a space intervenes large enough to supply the inhabitants with corn in case of siege. The houses are built of clay, covered for the most part with conical thatched roofs. The industry consists chiefly in the weaving and dyeing of cotton cloths, which are exported from Kano to the value of £30,000 annually, to Timbuctoo on the w., over the empire of Bornu on the e., and to Tripoli on the north. Dr. Barth estimates the number of slaves exported from Kano at 5,000 annually. The pop. is about 30,000, but during the busiest season of the year, from Jan. to April, it rises to about 60,000.

KANOGE, or KANOUJ, a t. and district of Hindustan, in the province of Furruckabad. The district lies along the e. side of the Ganges, and has generally a sandy soil, but well cultivated. The town is 2 m. from the Ganges, with which it is connected by a canal. It is of great antiquity, and when taken by Mahmoud of Ghizni was one of the most wealthy and populous cities of India. It was the capital of Hindustan at the time of the Mohammedan invasion, when, in 1018, it was captured, but not permanently held by Mahmoud. There is now but one street, and there are no important buildings. The adjacent plain is covered with ruined temples and tombs, and broken images under the trees. Among the ruins are found curious remains of antiquity, such as coins inscribed with Sanskrit characters, sometimes with the image of a Hindu deity. The distance of Kanoge from Agra is 110 m.; from Lucknow, 75 m.; from Delhi, 214 m.; from Calcutta, 650 miles.

KANSA, in Hindu mythology, a king of the race of Bhoja—considered also as a demon, Kâlanemi, in human shape—notorious for his enmity towards the god Krishna (see VISHNU), by whom he was ultimately slain.

KANSAS, a river which, with its tributaries, drains the northern portion of the state of Kansas, United States, flowing eastward into the Missouri, into which it falls, on the eastern boundary of the state. Its northern branch, Republican fork, rises in the Rocky mountains.

KAN′SAS, one of the United States of America, lying between lat. 37° and 40° n., and long. 94° 40′ and 102° west. Bounded on the n. by Nebraska, e. by Missouri, s. by Indian territory, w. by Colorado. It is 208 m. broad, and 408 m. long, and contains 81,318 sq. miles. The capital is Topeka, and the principal towns are Atchison, Lawrence, and Leavenworth. The chief rivers are the Missouri, Kansas, Osage, Neosho, the Arkansas, and their branches. Nearly 2,000,000 acres are mineral lands, but three-fourths of the entire area is well suited for agriculture. There are no mountains or swamps, but the land rises in bluffs and rolling prairies. Efforts are being made to reclaim the arid plains, once called the "Great American Desert," and there seems promise of success. The soil is very fertile, producing all the cereals, with cotton, hemp, tobacco, and fruits. The prairies contain abundance of game, consisting of the buffalo, deer, antelope, wild turkey, wild goose, prairie hen. The rivers are full of fish, and their banks are sparsely timbered. Iron, coal, lignite, marble, kaolin, and salt are among the minerals. In 1872 there were 1771 m. of railway completed, and 2,040 m. in 1875. In 1870 there were 1689 educational establishments, including a university and 21 colleges. In 1878 the state debt was $1,181,975; the value of real property, $96,695,457. Kansas was organized as a territory in 1854, and became the scene of violent contests between northern and southern settlers, on the question of slavery. After much violence a constitution was adopted excluding slavery, and Kansas was admitted into the union Jan. 29, 1861. Pop. in 1870, 364,399.

KANSAS (*ante*) was a part of the territory of Louisiana ceded by France to the United States in 1803. When Missouri, also a part of the same territory, in 1820, prayed for admission to the union as a slave state, a fierce controversy arose, the people of the north generally contending that congress ought to exercise its constitutional power to refuse the request until Missouri should agree to abolish slavery, while the people of the slave states demanded its admission on the ground of constitutional right. The controversy was finally settled by the adoption of what has since been known as "the Missouri compromise," the substance of which was that Missouri should be admitted to the

union as a slave state, but "that in all the territory ceded by France to the United States under the name of Louisiana which lies n. of lat. 36° 30′ n., excepting only such part thereof as is included within the limits of the state [Missouri] contemplated by this act, slavery and involuntary servitude, otherwise than in the punishment of crime, whereof the party shall have been duly convicted, shall be and is forever prohibited." The effect of this provision was to leave Arkansas, lying wholly s. of 36° 30′ n. lat., open for the introduction of slavery, and it was accordingly admitted to the union as a slave state in 1836, with but slight opposition from the free states. Iowa, being also a part of the Louisiana purchase, and lying n. of the line of 36° 30′ n. lat., was admitted to the union as a free state ten years later without opposition from the slave states. The "Missouri compromise" up to this time had been treated by both sections of the country as a finality. In 1854, when it was proposed to organize the territories of Kansas and Nebraska, the supporters of slavery incorporated in the act of organization a proviso declaring that the prohibition of 1820 was "inoperative and void," thus proposing to remove the barrier to the extension of slavery which had been created by congress 34 years previously, and to the maintenance of which, during all that period, both the northern and southern portions of the union had held themselves to be "forever" bound. The plea by which it was sought to justify this act was that "the compromises of 1850," so called, which had been adopted by congress as a "final settlement" of all the differences respecting slavery which then existed, operated as a "virtual" repeal of the Missouri restriction. It was not contended that the acts constituting "the compromise of 1850" contained any specific reference to the restriction of 1820, or that in the debates preceding their passage any hint or intimation was given that they would have the effect of repealing the restriction; but it was insisted that the legislation of 1850 was in principle incompatible with that of 1820, and therefore that the latter should give way. It was the avowed purpose of the supporters of slavery to introduce the system into Kansas and Nebraska, and to bring them into the union as slave states. Here was the beginning of the later series of events which led directly to the great rebellion and its war. By the vast majority of the people of the free states the proposition to repeal the Missouri restriction was held to be perfidious, and an intense excitement ensued. Numerous remonstrances against the act were sent to congress, among them one from 3,000 northern clergymen; but in spite of all opposition the act was passed. Emigrants from Missouri rushed into Kansas in large numbers, with a fixed determination to make it a slave state. The enemies of slavery determined to defeat this plan, and a tide of emigration flowed towards the new territory from the free states. Emigrant aid societies were formed and incorporated to assist those who were disposed to enlist in the struggle to save Kansas from the blight of slavery. Attempts were made to resist by force the entrance of emigrants from the north into the territory. A secret society had been organized in Missouri for the purpose of extending slavery into Kansas by sending voters into the territory, and public meetings were held to promote the same object. One of these meetings was held at Weston, and it was declared by those who were present that they held themselves in readiness, whenever called upon by any of the citizens of Kansas, "to assist in removing any and all emigrants who go there under the auspices of the northern emigrant aid societies." On Nov. 29, 1854, an election was to be held for the choice of a territorial delegate to congress. The polls were taken possession of by armed bands from Missouri, and, of the 2,843 votes cast, 1729, it was afterwards proved, were illegal. In Mar., 1855, an attempt was made to elect a territorial legislature, and again the polls were taken possession of by armed bodies of men from Missouri, who elected pro-slavery delegates from every district, and then returned to their homes. An investigation showed that of 6,218 votes cast in this election, only 1410 were legal, and that of these 791 were given for the free state candidates. Gov. Reeder set aside the returns from six of the districts, and ordered new elections therein, which resulted in the choice of free state delegates, except in Leavenworth, where the polls were again invaded by armed Missourians. The pro-slavery party, by fraudulent means, gained a majority in the territorial legislature, which expelled all the members chosen at the second elections ordered by gov. Reeder, and gave their seats to the men elected by the armed raiders from Missouri. The same body passed an act making it a capital offense to assist slaves in escaping either to or from the territory, and felony to circulate anti-slavery publications, or to deny the right to hold slaves; also an act requiring all voters to swear to support the fugitive-slave law. The struggle between the free state and the slave state parties did not end until 1859. The latter was constantly supported by the national executive, as well as by bands of armed men from Missouri. Governors whose sympathies were with the pro-slavery party at the time of their appointment were summarily removed by the president when they were found too honorable to connive at the most palpable frauds. The free state party, knowing themselves to be a majority of the actual settlers of the territory, refused to be cheated out of their rights. They met force with force, and were so courageous and persistent that the other side was at length compelled to give way, and in 1859 a constitution prohibiting slavery was framed by a convention of delegates at Wyandotte, and ratified by the popular vote—10,421 citizens voting for it, and 5,530 against it. This settled the question, and Jan. 29, 1861, Kansas was admitted to the union with a constitution prohibiting slavery.

The surface of the state is generally undulating, with a gentle slope toward the e., where there is a succession of fertile prairies, rich valleys, and grass-covered hills. On the western line the altitude above the sea is more than 3,000 ft., while it is less than 1000 ft. near the Missouri river. The river-bottoms vary in width from one-quarter of a mile to 10 miles. Back from the bottom-lands are bluffs varying in height from 50 to 300 feet. The state is abundantly watered. On the north-eastern border the Missouri presents a water-front of nearly 150 miles. The Kansas river, formed by the union of the Republican and Smoky Hill rivers, in Daviess co., flows eastward 150 m., and empties into the Missouri near Wyandotte, where the latter turns from a southerly to an eastward course. The Smoky Hill rises in Colorado, and after entering Kansas receives the Saline and the Solomon—the former about 200 and the latter 300 m. long. The Republican also rises in Colorado, flows across the n.w. corner of Kansas into Nebraska, and afterwards returns to the state, joining the Kansas as above mentioned. The Big Blue, which rises in Nebraska, and the Grasshopper are northern tributaries of the Kansas, while the Wakarusa joins it from the south. About two-thirds of the state lies s. of the Kansas and Smoky Hill rivers. The Osage rises in the e. part of the state, flows s.e. 125 m., and enters Missouri. The Neosho rises near the center of the state, flows s.e., receives the Cottonwood, and enters the Indian territory. The Verdigris, 20 m. further w., flows nearly parallel with the Neosho, and also enters the Indian territory. The Arkansas, which rises in Colorado, runs through nearly three-fourths of the length of Kansas, in a course so tortuous that its windings in the state have been reckoned at 500 miles. With its tributaries, the Walnut, the Little Arkansas, and Cow creek, it drains the larger portion of southern Kansas. No one of all these interior rivers is navigable.

Bituminous coal is found in the entire e. portion of the state, but some of the veins are thin. The coal-bearing region embraces an area of 17,000 sq. miles. Some coal of an inferior quality exists in the w. part of the state, where salt in large quantities and of the purest quality is found. Iron ore is found only in small quantities and of a character which will not repay working. Lead, alum, limestone suitable for hydraulic cement, petroleum, deposits of lime, fine building stone, and brick and other clays, are not lacking. The climate of Kansas is very pleasant, the great proportion of fair sunny days being one of its features. In winter the temperature rarely falls below zero; in summer it ranges from 80° to 100°, but the nights are cool and the air is dry and pure. The winter winds, to which the prairies offer no obstruction, are sometimes very severe; but on the whole the climatic conditions are highly favorable to consumptives and those suffering from asthma and other bronchial troubles.

The fossils in the w. part of the state are of great geologic interest. They embrace dicotyledonous leaves of many species, some of which are new to science: cinnamon, such as now grows only in the torrid zone; large sharks and other fish; saurians and amphibians of great size; and marine shells, reptiles, and fishes of species previously unknown.

The soil of the state is admirably adapted to agriculture, being rich in the mineral constituents which promote vegetation. The bottom-lands are especially fertile, the soil being from 2 to 10 ft. deep. On the uplands it is from 1 ft. to 3 ft. in depth. In the e. half of the state it is a black, sandy loam, intermixed with vegetable mold. In the w. part it is of a lighter color, but deeper than that in the east. The e. part of the state is well wooded. The trees most abundant are oak, elm, black walnut, hickory, sycamore, cotton-wood, box-elder, honey-locust, willow, white ash and blackberry. In the most sparsely-settled portions of the state the buffalo, elk, deer, antelope, and prairie-dog may still be found, while the prairie-hen, wild turkey, wild goose, and other game birds are plentiful.

The prosperity of Kansas since its admission to the Union is hardly paralleled by that of any other state. In 1855 it had a population of 8,501; in 1860, 107,206; in 1870, 364,399; in 1875, of 531,156; in 1885, of 1,250,000. The increase since 1875 appears to have been at the rate of nearly or quite 100,000 per annum. It is mainly an agricultural state, though its manufacturing interests and mineral resources have been rapidly developed. The assessed value of property in 1875 was $137,480,000. The total number of acres of land was 33,599,600, of which 5,595,305 were then under cultivation, and 28,004,295 were uncultivated. In 1884 the cultivated portion of the state had increased to 9,458,737 acres. The true valuation of taxable property in 1884, was $402,864,163. The state debt, 1885, Jan. 1, was but $935,500, while the local municipal debts exceeded $16,000,000. The leading agricultural products in 1883, expressed in bushels, were as follows: corn, 172,800,900; wheat, 26,851,100; rye, 4,583,500; oats, 27,560,000; barley, 347,490; buckwheat, 27,720; potatoes, 6,361,520; tons of hay, 5,075,000; total acreage devoted to these crops, 10,812,891; total valuation of crops, $98,195,825. 102,042 acres were devoted to sorghum; in the year ending March 1, 1883, 23,947,016 lbs. of butter were produced; and 591,770 lbs. of cheese. In 1884 the following crops were produced: corn, 190,870,686 bush.; wheat, 48,050,431 bush.; oats, 27,419,000 bush. 3 factories, from 19,300 tons of cane, produced 602,000 lbs. of sugar of fine quality, and 155,500 gallons of syrup. Flax, broom, and rice corn, sweet potatoes, tobacco, and castor beans are extensively raised, and in 1883, 107,550 lbs. of cotton were produced. K. produces superior apples, peaches, and grapes. The latest statistics of manufactures are those of 1880, when the number of establishments was 2,803, employing capital

amounting to $11,192,315, and paying in wages during the year, $3,999,599 ; value of products, $30,790,212. The chief industries were : carpentering and building, flouring and grist mills, foundries, lumber mills, saddlery and harness, and woolen mills. A state commissioner has met with success in stocking the rivers with fish, chiefly salmon and shad. The number of national banks in 1884 was 35, with a capital of $2,185,000 ; of state banks and trust companies, 59 ; private bankers, 161. Under the timber culture act, over 140,000 acres have been planted with forest trees.

The public institutions are : the asylum for the insane at Ossawatomie, the asylum for the deaf and dumb at Olathe, the school for the blind at Wyandotte, the state university at Leavenworth, the state agricultural college at Manhattan, and the state penitentiary at Leavenworth, also a reform school for boys near Topeka. The constitution requires the legislature to establish "a uniform system of common schools, and schools of a higher grade, embracing normal, preparatory, collegiate, and university departments." There are normal schools at Emporia (state), and Paola ; a normal college at Fort Scott ; a normal university (private) at Holton ; and a normal department at the university of Kansas. There are 8 collegiate institutions besides the university of K., and the K. agricultural college. Children from 8 to 14 years old must attend school at least 12 weeks each year. The school pop., 1883–4 was 411,250 ; number enrolled, 308,601 ; number of teachers, 1883, 8,283, of whom 5,406 were women ; value of buildings and grounds, 1884, $5,775,582 ; total receipts, $3,392,050 ; expenditures, $2,882,963 ; total invested school fund, $1,357,395. The number of cities having high schools is about 30.

There being in the interior of the state no navigable rivers, the railroads are the chief means of transportation and travel. There were in the state in 1884, 4,486 m. of railroad in operation, the assessed value of which was $28,455,907. The law prohibits the corporations from charging over 6 cents per mile for transporting passengers. The principal roads, with their number of miles within the state, are : The Atchison, Topeka, and Santa Fé, 598 ; Union Pacific, 482 ; St. Louis, Fort Scott and Wichita, 157 ; central branch of the Union Pacific, 388 ; Missouri, Kansas and Texas, 237 ; Kansas City, Fort Scott, and Gulf, 256 ; Missouri Pacific, 195.

Topeka is the state capital. The capitol building is a large and handsome structure. The governor is elected by the people for two years and receives an annual salary of $3,000. The lieutenant-governor, secretary of state, auditor, treasurer and superintendent of public instruction are elected in the same way, for the same term, each receiving an annual salary of $2,000. The attorney-general, elected in the same way and for the same term, is paid $1,500 per annum. The legislature is composed of a senate and house of representatives, and the number of their members respectively changes as new counties are organized. The apportionment of 1881 fixed the number of senators at 40, and of representatives at 125 ; the former being elected for 2 years, the latter for 1 year. Their compensation is fixed by the constitution at $3 per day for actual service and 15 cents per mile for travel to and from the capital. The sessions commence annually on the 2d Tuesday of January. The annual election is held on the Tuesday succeeding the first Monday in November. The supreme court, consisting of a chief-justice and 2 associate justices, is elected by the people for the term of 6 years ; the district courts, of one judge each, are elected by the people for four years ; the probate court of each county, consisting of one judge, is elected for two years. Married women may sue and be sued, carry on in their own names any trade or business, and have full control of their earnings. The property of a wife at marriage is not merged with that of her husband, but remains her own. Neither husband nor wife is allowed to bequeath more than half of his or her estate away from the other without written consent. Divorces are allowed for abandonment for one year, adultery, impotency, extreme cruelty, drunkenness, gross neglect of duty, and imprisonment in the penitentiary subsequent to marriage. No intoxicating liquors can be manufactured or sold. The electoral votes of Kansas for president and vice-president of the U. S. have been cast as follows : 1864, 3 for Lincoln and Johnson ; 1868, 3 for Grant and Colfax ; 1872, 5 for Grant and Wilson ; 1876, Hayes and Wheeler, 5 ; 1880, Garfield and Arthur, 5 ; 1884, Blaine and Logan, 9.

KANSAS, a tribe of Indians of the Dakotah family, and a branch of the Osages. On Marquette's map of 1673 they are placed on the Missouri river, beyond the Missouris and the Osages. The Jesuits had a mission among them in 1728. In 1815 they were on the Kansas river at the mouth of the Saline, near the center of the state which has adopted their name, the Sioux having driven them from their home on the right bank of the Missouri. They numbered but 1500 at this time, and the government made a treaty of peace with them. By another treaty, made June 8, 1825, they ceded all their lands in Missouri and elsewhere, retaining a reservation 30 m. wide on the Kansas river. Thirty-six sections of land were to be sold, and the money thus obtained was to be invested as a school fund for their benefit; and the government agreed to give them an annuity of $3,500 for 20 years, and provide them with animals and implements of agriculture. Ten years later the Methodists established a mission among them, but failed of success. They could not be induced to cultivate the soil, and were constantly falling into trouble with the neighboring tribes. In 1846 the government entered into another treaty with them, by which a reservation 20 m. square on the head waters of the Neosho was assigned to them. After removing to their new home they fell into bad habits and began to plunder the trains on the Santa Fé road. When Kansas began to be settled

their reservation was invaded by the "squatters," who forced many of them to leave. In 1854 they entered into treaties granting a right of way through their territory to certain railroads. They took no part in the Kansas troubles, but furnished 80 or 90 soldiers, who fought well for the United States in the war against the rebellion. In 1862 the Friends established a mission among them, but met with little success. In 1867 and 1869 new treaties were made with them, and finally, in 1872, congress directed their reservation on the Neosho and their trust lands to be sold, half the proceeds to be invested for their benefit, and half to be spent in providing new homes for them in the Indian territory. They also receive 5 per cent annually on $200,000 under the treaty of 1846, and the interest on $27,485 in stocks held for them by the government. In 1872 their number had dwindled to 593.

KANSAS CITY, in the state of Missouri, on the s. bank of the Missouri river, at the confluence of the Kansas river, and near the boundary line between the states of Missouri and Kansas, which in fact runs n. and s. through the western suburb of the city. It is the county seat of Jackson co.; pop. '70, 32,260; '80, 55,813. The site of the city is alluded to by Fremont in 1843 as Chouteau's landing. The city now covers numerous knobby bluffs, which rise to the height of 120 ft. above the river. The abruptness of these elevations from the river necessitates deep cuts and fills for the streets, which are laid out to pierce through hill and over gulch, regardless of natural topography. The city, therefore, presents a rough appearance on a general view; but its business buildings are substantial, and many residences on the hills are elegant and tastefully adapted to the hilly sites. The growth of Kansas City began with that remarkable migration into the territory of Kansas urged by New England antislavery societies from 1850 to 1860. Before that time southerners with their slaves had begun to settle the territory. Kansas City was one of the gateways of this conflicting migration. After the great conflict was over its position proved to be most advantageous for railway concentrations from the e. and the west. It became one of the great points for supplying west-bound emigrants to Kansas, Texas, Colorado, New Mexico, and the overland trade with California before the Union Pacific railroad was completed, as well as the main market for the sale of the cattle, buffalo skins, and hides of all the plains w. and s.w. Where ox and mule trains and driven cattle made the beginnings of its growth, fifteen different railways now radiate to all parts of the country, making Kansas City the heart of a great railway system. The bottom land at the intersection of the Kansas with the Missouri makes a convenient meeting place for all the railways. An iron bridge across the Missouri 1387 ft. long, supported on 7 stone piers, built by a railway association, furnishes a river-crossing for most of these roads. Two other fine bridges also span the Kansas and invite the growth of the city into the neighbor state. Four lines of street railways are operated, connecting with Westport in Missouri and Wyandotte in Kansas. There are six grain elevators, with storage for 1,495,000 bushels.

The city is especially the mart of trade in cattle and other live stock. Its shipments for 1879 were: cattle, 211,361 head; hogs, 589,794 head; sheep, 61,157 head; horses, 15,826 head. The stock yards are extensive. A cattle stock exchange building, containing 24 offices, two banks, restaurants and shops, is at the yards. Beef and pork packing is a business of great magnitude and engages a large European capital. Of late years bodies of bituminous coal have been opened in the border counties s. of the city, and this fuel is distributed by rail and water over a vast country from this point. A board of trade was organized in 1872, which has been influential in giving direction to the business spirit of the city. The post-office receipts for the year 1879 were $98,948, realizing a profit to the department of $69,425; postal remittances received same year, $504,555; postal orders issued, $208,029. The free school system embraces 13 primary schools and 1 high school. Besides, there are Roman Catholic schools and seminary, a medical school, and commercial college. The city has 28 churches; 5 daily papers (3 morning and 2 evening), 2 tri weekly, 17 weekly, and 2 bi-monthly; an opera house and 2 theaters; a city hospital, an orphan asylum, a work-house, and a woman's home. The city has water-works by a combination of the reservoir, stand-pipe, and Holly systems, from which it derives an annual revenue of about $100,000 (1879). It is lighted with gas, has a paid fire department, and an efficient police. The bonded debt, July 1, 1880, was $1,353,702.

KANSAS: co., Kan. See page 889.

KANSAS, or KAW, RIVER (*ante*), formed by the Smoky Hill fork and the So omon river, which unite in Salina co., near the center of the state of Kansas. It flows eastward, and empties into the Missouri near Kansas City. The Big Blue from the north enters it at Manhattan. It is 300 m. long, and has upon its banks Lawrence, Topeka, and Junction City, and the Kansas Pacific railroad runs by its side from its mouth to its source. It is not navigable to any important extent.

KAN-SU', the most north-western province of China, is bounded on the e. by Shen-se, on the s. by Thibet and Se-Chuen. Area estimated at from 80,000 to 100,000 sq.m.; the pop. is 15,193,135. Its surface is mountainous; chief river the Hoang-ho. Lan-chow is the capital, and there are six other cities of the first rank.

KANT, IMMANUEL, one of the greatest and most influential metaphysicians of all time, was the son of a saddler, of Scotch descent, and was born at Königsberg April 22, 1724. He was educated at the university of his native town, and after spending some years as

a private tutor, took his degree at Königsberg in 1775, and began to deliver prelections on logic, metaphysics, natural philosophy, and mathematics. In 1762 he was offered, but declined the chair of poetry, and in 1770 he was appointed professor of logic and metaphysics. He died Feb. 12, 1804. Kant's private life was uneventful, yet curious and almost ludicrous in its mechanical regularity. As Socrates could hardly be induced to go beyond the walls of Athens, so Kant clung with oyster-like tenacity to the city of his birth, never leaving it during the thirty years of his professorship. He remained a bachelor all his life. Kant was a man of unimpeachable veracity and honor, austere, even in his principles of morality, though kindly and courteous in manner, a bold and fearless advocate of political liberty, and a firm believer in human progress. The investigations by which he achieved the reputation of a reformer in philosophy, refer not so much to particular sections or problems of that science, as to its principles and limits. The central point of his system is found in the proposition, that before anything can be determined concerning the *objects* of cognition, the *faculty* of cognition itself, and the *sources of knowledge* lying therein, must be subjected to a critical examination. Locke's psychology, indeed, at an earlier period in European speculation, had shown a similar tendency; but before Kant, no thinker had definitely grasped the conception of a critical philosophy, and Kant himself was led to it not so much by Locke, as by Hume's acute skepticism in regard to the objective validity of our ideas, especially of the very important idea of causality. The Kantian criticism had a twofold aim: first, to separate the necessary and universal in cognition from the merely empirical (i. e., from the knowledge we derive through the senses); second, to determine the limits of cognition.

In regard to the former of these, it is of importance to observe that Kant did not subject the old psychological doctrine of "faculties" to any analysis, but attributed to each of these—viz., to the faculties of sense, understanding, judgment, and reason—certain innate *à priori* forms, conceptions, and functions, which, as constituting the necessary conditions of any experience whatever, possessed, on account of their subjective necessity, a universal subjective validity. Thus, in the sense, as the faculty receptive of external impressions, there must lie, according to Kant, the forms of space and time; in the understanding, as the faculty by which the manifold in appearance is combined in the unity of conception, in the categories; in the reason, as the faculty of principles, the ideas of the unconditioned and the absolute; in the judgment, in as far as it is not merely subsumtive, but also reflective, the conception of design or conformity to the purpose in view; finally, in the will or the practical reason, the categorical imperative of the moral law.

In regard to the latter aim of the Kantian criticism—viz., to determine the limits of threoretical knowledge—the efforts of Kant go to show that universal forms, existent *à priori* in the human mind, can afford knowledge only under the condition that the objects which they cognize are presented by experience; while for the determining of what lies beyond the limits of experience, they are merely empty forms, by which something indeed is *thought*, but nothing *known*. Even within the limits of experience itself, we are cognizant, according to Kant, through the forms of the sense and of the understanding, not of things as they are in themselves, but only as they appear; hence the opposition between *noumena* and *phænomena*. But when we try to transcend those limits and to ascertain the intelligible basis of the phenomenal world by the forms of the sense and the categories, the *reason* becomes entangled in an unavoidable dialectic for which there is no objective, but only a critical solution. The objects of this dialectic, the carrying out of which constitutes an essential and leading part of the *Critique of the Pure Reason*, are the soul, the world, and God; and in relation to the cosmological conceptions in particular (viz., of the beginning and end of the world, of the unity or non-unity of the ultimate particles of things, of causality through freedom or through the necessity of nature), the reason is involved in a series of self-contradictions (in the Kantian technology, *antinomies*). The result, according to Kant, of the critical examination of all claims to a knowledge transcending experience in the regions of rational or speculative psychology, cosmology, and theology, is the necessity for abandoning the hope of attaining such. The idea (native to the reason) of the unconditioned is allowed to possess a regulative, not a constitutive value; that is to say, it is a principle necessary for the extension of our inquiries beyond the fixed limits of experience, without, however, yielding us an extended knowledge. So far the philosophy of Kant is purely negative and destructive. Hamilton, Mansel, and others have—in regard to the limits of the knowable—merely reiterated the arguments of the great German, while in regard to the points in which they do differ from him, as, for example, the *nature* of our knowledge, it is a matter of very great doubt if they are as logical and consistent as their predecessor.

But the austere and stoical morality of Kant was something too *positive* to allow him to rest satisfied with merely negative results; hence he sought in the reality of his ethics a compensation for the nihilism of his metaphysics. He maintained the unconditional validity of the moral law, and of the consequences which legitimately flow from it. This validity, however, it should be observed, is simply *moral*, and in no way demonstrates the metaphysical reality of the ideas, which, nevertheless, by a power of its own, it compels us to accept. The reason, as operating in the sphere of ethics, is

called by Kant the practical reason, or the practico-legislative reason. The ideas which the practico-legislative reason postulates are, 1st, the idea of *freedom;* 2d, of immortality, as the necessary condition for an ever-increasing approximation to the fullness of the moral law; and 3d, of the being of God, as the necessary condition of such a regulation of the universe as shall show the order of nature to be the expression of a moral design. Rejecting all the ontological, cosmological, and physico-theological proofs of the existence of God as mere futilities, Kant based his belief in God on the inward necessities of a practical morality. Religion—i. e., the recognition of our duties as divine commands—has, in the system of Kant, the closest dependence on morality; in fact, becomes identical with it. This purely ethical conception of religion led him to a criticism of the positive dogmas of theology from an ethical standpoint, in which are contained most of the elements of theological rationalism. The application of the practical reason, as understood by Kant, to æsthetics and jurisprudence is equally fruitful of important results.—Kant's first work, *Gedanken von der wahren Schätzung der lebendigen Kräfte* (Thoughts on the True Estimation of the Active Powers), was published in 1747. The principal of its successors were, *Die falsche Spitzfindigkeit der vier syllogistischen Figuren* (The False Hair-splitting of the Four Syllogistic Figures, 1762), *Beobachtungen über das Gefühl des Schönen und Erhabenen* (Observations on the Beautiful and Sublime, 1764); *De Mundi Sensibilis et Intelligibilis Forma et Principiis* (On the Form and Principles of the Sensible and Intelligible World, 1770); this is the prelude to his *Kritik der reinen Vernunft* (Critique of the Pure Reason, 1781); *Grundlegung der Metaphysik der Sitten* (Basis of the Metaphysics of Ethics, 1785); *Kritik der praktischen Vernunft* (Critique of the Practical Reason, 1788); *Kritik der Urtheilskraft* (Critique of the Judgment, 1790); and *Religion innerhalb der Grenzen der blossen Vernunft* (Religion within the Limits of Mere Reason, 1793). For an account of the influence of Kant, see GERMAN PHILOSOPHY. See also Caird's *Account of Kant's Philosophy* (1877). See ANTIMONY: *Categories.*

KANTEMIR. See CANTEMIR.

KA'OLIN is the name given by the Chinese to the fine white clay which they use in making their porcelain. It is furnished by the decomposition of a granitic rock, the constituents of which are quartz, mica, and feldspar, the latter having gradually moldered, by the joint action of air and water, into this substance. A very similar clay, to which the Chinese name has been given, occurs near St. Austel in Cornwall, and near Limoges in France. In these cases, it is produced by the decomposition of *pegmatite*, a granite in which there is scarcely any mica and very little quartz. All clays are silicates or hydrated silicates of alumina: and these clays, which are much valued by the porcelain-makers, may be represented by the formula $Al_2O_3,3SiO_3 + 2HO$.

KAPILA, the renowned founder of the Sânkhya (q.v.), one of the philosophical systems of the Hindus. Prof. J. E. Hall, in his learned and excellent preface to his edition of the text-book of the Sânkhya, the *Sánkhya-Pravachana*, says: "By the prevalent suffrage of mythology Kapila is reputed to have been a son of Brahmâ; but he is otherwise described as an incarnation of Vishnu. He is also recounted to have been born as the son of Devahûti; and again is identified with one of the Agnis or fires. Lastly, it is affirmed that there have been two Kapilas—the first, an embodiment of Vishnu; the other, the igneous principle in human disguise. It must be acknowledged, in short, that we know nothing satisfactory concerning Kapila; the meager notices of him that are producible being hopelessly involved in uncertainty and inextricably embarrassed by fable. Yet it may be credited, with but little hesitation, that he was something more substantial than a myth; and there seems to be tolerably good ground for receiving, as a historical fact, his alleged connection with the Sânkhya."—*Bibliotheca Indica*, *Sánkhyapr.*, p. 14, *seq.*

KAPP, FRIEDRICH, b. in Germany, 1824, devoted his earlier years to the study of law; but, having espoused the cause of those who were seeking to establish republican principles on the continent of Europe, he became involved in the revolutionary movement of 1848, and found it necessary to leave the country. He accordingly went to New York, where he joined the republican party in politics, and while he practiced his profession, also interested himself greatly in public affairs. He was chosen one of the republican presidential electors for the important election of 1860, and in that capacity cast his vote for Abraham Lincoln. He was a commissioner of emigration in the city of New York. In 1870 he went to Germany, where he was elected to the reichstag. He has written a number of works on slavery, and on the relations of Germany and the United States, and lives of baron de Kalb and gen. Steuben.

KAPPEL, a village in the canton of Zurich, Switzerland; pop. 1256; noted chiefly as the place where Zwingli was killed in 1531, in a battle between Protestants and Roman Catholics.

KARA GEORGE. See CZERNY GEORG, *ante.*

KARAHASSAN, BATTLE OF. See page 889.

KARAHISSAR'. See AFIUM—KARA-HISSAR, *ante.*

KARAITES. See JEWISH SECTS.

KARA'JITCH, VUK STEFANOVITCH, 1787–1864; b. Serbia; educated at Karlovitz at the school for dissenters from the Greek church. Being of a delicate constitution,

instead of joining the insurgents in their struggle against the Turkish authorities which began in 1804, he acted as secretary to their chiefs, who were ignorant of the art of penmanship. He also served at Belgrade, as secretary of the senate and of Kara-George or black George, prince of Serbia, while he held the power. In 1813, the Serbians being abandoned by Russia, he was compelled, after the treaty of Bucharest establishing the power of the sultan, to fly to Austria, and encouraged by Kopitar, the Slavonic scholar, then holding a position in the imperial library, he undertook the labor of collecting the national ballads, with many of which he had been familiar as a boy. He traveled through Bosnia and Montenegro, seeking among 5,000,000 of Serbian-speaking people for their ancient songs, translations of some of them having been loudly praised by Goethe. Some are of recent origin, celebrating the exploits of the first 10 years of the present century. He was supplied from all sources, even by ferocious Mohammedans of western Turkey, and by Serbian women, who contributed their familiar love-songs. In 1814 he published *Narodne Srpske pjesme*, (Vienna, 4 vols.), selections of which have been translated into English and German, ranking very high among European ballads. He also published a Serb grammar translated into German by Jacob Grimm, and in 1818 a Serbo-German dictionary, basing his system of orthography on the Russian alphabet, and *Danitza*, a literary almanac. In 1826–34, *Serb Popular Proverbs*, and *Serb Popular Tales*. In 1847, a Serbian translation of the New Testament. In 1849, *Kovchejich; or, Casket for the Serbian Language and History*, and other works of value in the study of the race. He received the honorary degree of PH.D. from the university of Jena, and a pension from the Russian government. His Serbian countrymen have no family names, and the distinctive surname of Karajitch is the name of the district where his family resided; his appellation of Vuk Stefanovitch signifying Wolf, the son of Stephen.

KARAIJITCH, VUK STEFANOVITCH, b. 1787; and educated in Carlowitz, in Austro-Hungary, on the Danube. He served in the Servian war of independence, and after it failed fled (1813) to Austria, where he engaged in literary pursuits. He was the author of a Servian grammar and dictionary, and made a collection of the popular songs of Servia, which was translated into German and English. He also published a volume of Servian proverbs and popular tales.

KARAK, a small rocky island in the Persian gulf in lat. 29° 14′ n., long. 50° 20′ e.; 15 m. in circumference, and 40 m. n.w. of Bushire; pop. about 3,000. A village on the n. side has 1000 inhabitants, who support themselves by fishing and raising fruits. Vessels find safe anchorage at Karak during the violent gales from the n.w. which prevail in this sea. It has a fertile soil and good water, but is without timber. The Dutch built a fort here in the 18th c., but soon abandoned the island. The English occupied it, 1839–41, and in 1856 the English expedition against Persia landed on the s.e. coast.

KARAKO'RUM, or MUSTAG MOUNTAINS, called also TSUNG LING, a range of central Asia, separating the province of Cashmere from eastern Toorkistan, and crossing Thibet. It commences in long. 74° 30′ e., and extends to about 92° east. It is, in fact, the western part of the Kuenlun mountains, and the name is given also to a pass 18,000 ft. high by which the Karakorum range is crossed from Thibet into Chinese Toorkistan. Depsang peak on this range is 28,278 ft high, and others are nearly as high. The average height is 25,000 feet. The highest water-shed of Asia is near the Karakorum pass. This range, with which the Kuenlun is often said to be connected, is in fact a distinct branch of the Himalayas. The city of Karakorum was the ancient capital of Mongolia, and for a time of Jenghis Khan. Its site has not been discovered.

KARAMAN, KARAMA'NIA, or CARAMANIA, an inland region of Asia Minor, is bounded on the w. by Anatolia, on the e. by Rumili, on the s. by the Taurus mountains Cattle-breeding is the chief employment of the inhabitants, who are for the most part nomadic Turks. The town of Karaman (anc. *Laranda*) has a pop. of about 20,000. Karaman very nearly corresponds in area with the modern vilayet of Konia.

KARAMSIN, NICHOLAS MICHAILOWITSH, the greatest of Russian historians, was b. Dec. 1, 1766, at Bogoroeldza, in the government of Simbirsk. His father was an officer of Tartar descent, and placed him in the army, but he soon retired from it, and devoted himself to literary pursuits, and after a tour in Germany, Switzerland, and France, took part in establishing the *Moscow Journal*, and published volumes of tales, poetry, etc. But the work which first gained him a high reputation was his *Letters of a Russian Traveler* (6 vols. Moscow, 1797–1801), a work which exercised an extraordinary influence in the improvement of literary taste in Russia. After some other literary attempts of no great importance, he directed his attention to the history of his country. In 1803 he was appointed imperial historiographer, with a pension of 2,000 rubles, and from this time he labored uninterruptedly at his *History of Russia* (12 vols. Petersb., 1816–29), for the preparation of which he had access to all the national archives. For this work the emperor Alexander, who had read part of it in manuscript, made him a present of 60,000 rubles. It has been translated into other languages. It comes down only to 1611. It is in high repute in Russia, displays much research and judgment, and is, in fact, by far the most valuable work in Russian historical literature. Karamsin died on May 13, 1826.

KARA'SU-BAZAR, a manufacturing t. in the Crimea, 25 m. e.n.e. of Simferopol. It is surrounded by gardens, and contains 5 churches and 22 mosques with minarets. Pop. '78, 11,669, who carry on considerable trade, and manufacture morocco leather and other articles.

KARATCHEF', a t. in the n.w. of the government of Orel, European Russia, on the Sniejas, an affluent of the Dezna, dates from the 12th c., and contains ('80) 11,267 inhabitants, who carry on a large trade in cordage.

KARDZSAG'-UJ-SZALLAS', a market-town of Hungary, capital of the district of great Cumania, is situated about 90 m. e.s.e. of Pesth. It is the center of a district of exuberant fertility, and is the mart for the grain, fruit, wine, and cattle raised in that district. Pop. '80, 15,825.

KARE'LIA, an ancient province of Sweden, near the gulf of Finland, annexed to the Russian empire by Peter the Great, and now forming portions of the governments of Finland, St. Petersburg, Olonetz, and Archangel. The original inhabitants were of Finnish origin.

KAREN'GIA, *Pennisetum distichum*, a grass closely allied to the millets, and producing a grain of the same kind. It is a native of central Africa, and is extremely plentiful on the southern borders of the Sahara, supplying in some places the principal part of the food of the inhabitants.

KARENS, or KARRANS (wild men), so called because, through oppressions and atrocities of the people among whom they dwelt, they have been driven to occupy jungles and almost inaccessible mountains, shunning other races except as drawn for trade to the towns. They are found in Burmah, Siam, and the southern part of China. They are supposed to have anciently migrated from farther north, and their features and language suggest a Caucasian origin. They are found sometimes as nomads, burning the underbrush in a forest, building three or four huts in the ashes, staying till the resources of the spot are exhausted, then moving elsewhere. Sometimes they are found as husbandmen, raising rice, vegetables, and fruit, and trading in honey, poultry, pigs, rattan, mats, and tusks of the elephant and rhinoceros. They are harmless and industrious, and superior in morals to many more civilized races. The common dress is a sleeveless cotton frock, but they are fond of ornaments. Their houses are of bamboo, raised on strong posts, 6 or 7 ft. from the ground. As a race they are without form of religion or regular priesthood, and till recently without a written language; but through a set of poetic legends they have transmitted from father to son ideas of an overruling God, of the brotherhood of man, and of future reward and punishment. In these songs, which are singularly pure and elevating, are accounts of the creation, of a deluge, of a time when language became confused in consequence of disbelief in God, of the betrayal of a son and daughter of God by Satan in the form of a dragon, which are remarkably like the teachings of the Jewish scriptures. In these songs are also prophetic anticipations of future enlightenment through white strangers, who should come to them by water. When the missionaries sent to Burmah met with these people, and began to tell them of Christ, they were gladly received, and their labors have been attended with success scarcely rivaled in the history of missions. The converts were relentlessly persecuted by the Burmese, but, since southern Burmah fell into the hands of the English, the Karens have been able to build churches and establish schools. There were, 1884, 103 ord. native preachers, 363 unordained, 463 churches, 23,804 members, 1,553 baptisms.

KARIKAL', a remnant of the once extensive possessions of France in India, lies on the Coromandel coast, on the estuary of one of the branches of the Kaveri, within the limits of the British district of Tanjore. It contains only 51 sq.m., with ('73) 92,445 inhabitants, of whom the great majority are natives. Karikal was ceded to the French by the rajah of Tanjore in 1759. Having subsequently fallen into the hands of the English, it was restored at the general pacification of 1814, on condition that it should neither contain any fortification nor possess any garrison, unless for purposes of police. This tract is of little commercial importance. Karikal is 150 m. to the s. of Madras.

KARKOR, a city e. of the Jordan, in the desert. Its exact location has not been identified, though supposed to have been not far from Succoth and Penuel. Here Zebah and Zalmemna, the Midianitish kings, were routed by Gideon (Judges, viii. 10).

KARLI. See CARLEE.

KARLSBAD. See CARLSBAD, *ante*.

KARLSBURG. See CARLSBURG, *ante*.

KARLSKRONA. See CARLSCRONA, *ante*.

KARLSRUHE. See CARLSRUHE, *ante*.

KARLSTAD. See CARLSTAD, *ante*.

KARLSTADT. See CARLSTADT, *ante*.

KARMA'THIANS, CARMATHIANS, so-called from Abu Saïd Al-Jenabi, surnamed Al-Karmata, a Mohammedan sect which sprang up in the 9th c. A.D., under the caliphate

of Al-Motamed, and which, by a combination of extraordinary circumstances, succeeded in establishing itself for a time, as a political power whch threatened to overturn the caliphate itself. What we have said of the particular creed and tendencies of the Ismaïlis, under that heading in the SUPPLEMENT, began first to be fully realized and developed about the middle of the 2d c. of the Hedjrah, through one Abdallah Ibn Maimun; an oculist (kaddah) by profession and a Persian by birth. It was he first who, aided by favorable circumstances, matured a plan which, for the boldness and genius of conception and for the energy and vigor with which it was carried out, has not many parallels in history. Nothing less was contemplated than the union of the Arabic conquerors and the many races they had subjected since Mohammed's death, and the enthronement of what afterwards was called "Pure Reason" as the sole deity to be worshiped. The advanced should be free of all so-called religious fetters, which, as symbols and allegorical actions, should be laid all the heavier on the necks of the less advanced strata of society. The "Believers" and "Conquerors" were to be made missionaries for unbelief and the implements for the destruction of their own empire. Whatever the ultimate plans of Abdallah may have been, there can be no doubt about the astute way in which he set to work for the new faith. With an extraordinary knowledge of the human heart and human weakness, he offered devotion to the believer; liberty, if not license, to the "free in spirit;" philosophy to the "strong-minded"; mystic hopes to the fanatics; miracles to the masses. To the Jews, he offered a Messiah; to the Christians, a Paraclete; to the Moslems, a Mahdi; and to the Persian and Syrian "pagans," a philosophical theology. His practical exertions, and their wonderful results, soon attracted the attention of the authorities. Obliged to flee from place to place, he sought refuge successively in Karaj, in Ispahan, in Ahwaz, in Basra, finally in Salamia, in Syria, where he died, leaving his son Ahmed his successor as chief of the sect of the Ismailis. This Ahmed, warned by the fate of his father, proceeded with greater caution, more especially with regard to the name of the Imam or great Prophet, which he left rather uncertain.

Among the missionaries he sent to Irak there was one named Husein Ahwazi. In the province of Kufa this missionary, according to some of the authorities, met a man named Hamdan Karmat, whom he converted to the new faith, and at his death laid his mission upon Karmat's shoulders, whom he had previously initiated into the whole extent of the faith. According to others, however, it was Husein himself, who from some cause received the name of Karamita or Karmat, a word the meaning of which is rather uncertain—indicating, according to some, a man who, having short feet, makes small steps; according to others, a man who has red eyes, etc.

Whoever Karmat was, he was the fittest man to carry out the original intentions of the founder. He very soon succeeded in gaining the full confidence of his flock, which increased daily, and in making them blind instruments of his will. He introduced, according to some of the authorities, absolute communism, not only of property, but even of wives, among them, and founded one particular colony, consisting of chosen converts, around his own house in Kufa. This residence of his, called the house of refuge, became the center of an immense conspiracy. From this place all the missionaries were sent out, and all the threads of the great movement were directed. Amongst the most noted of those missionaries was one Abu Saïd, who was sent first to southern Persia, and afterwards to Bahrein, in the Persian gulf.

The inhabitants of Bahrein, which had formerly been a province of Persia, were partly Jews, partly Persians, who had capitulated with Mohammed, and had been allowed to retain their own creeds. After the prophet's death, they had at once shaken off the unwelcome yoke, which, however, had again been put upon them by Omar. The interior of the country was inhabited by certain Arabs, highly disaffected against Islam, the innumerable precepts of which they disliked with an intense dislike. No wonder that Abu Saïd made the most marvelous strides in his conversions. In less than two years he had brought over a great part of the people of Bahrein. In 287 Hedjrah the caliph sent an army of 10,000 men against Abu Saïd and his followers, but the latter remained victorious, and made the caliph's own general prisoner. He now gained undisputed possession of the whole country, part of which he had only conquered as yet, and having destroyed the old capital Hajar, made Lahsa, his own residence, the capital of the country. While the court of Bagdad was threatened with destruction by this newly-established power on one side, two chiefs of another Karmathian branch appeared, the one in the neighborhood of Kufa, the other in Syria. The first was defeated, captured, and tortured to death; the other was more successful. The governor of Damascus, who marched against him, was beaten most ignominiously. This Karmathian triumph, however, though followed by a few others, was of but short duration. A decisive victory (294 Hedjrah), won by the caliph's general, Wasif, forever put an end to this branch of the Karmathians.

Meanwhile both Karmat and Abu Saïd had become—by what means is matter of great obscurity—faithless to their own creed. We have no certain dates about the death of Karmat. Abu Saïd was killed, together with some of his principal officers, in the bath in his own castle at Lahsa, in 301 Hedjrah, by one of his eunuchs; and four years later his son, Abu Tahir, became his successor, and he has left his name indelibly stamped upon the annals of Islam. In 311 he seized the town of Basra. In the next year he pillaged the caravan which went to Mecca, and ransacked Kufa. In 315 he

once more reappeared in Kufa and in Irak, and gained so decided a victory over the caliph's troops that Bagdad began to tremble before him. In 317 (930 A.D.) the great and decisive blow against Mohammedanism was struck. When the great caravan of pilgrims for the annual pilgrimage had arrived at Mecca, the news suddenly spread that Abu Tahir, the terror of Islam, had appeared at the head of an army in the holy city itself. All attempts to buy him off failed, and a massacre of the most fearful description ensued. With barbarous irony, he asked the victims what had become of the sacred protection of the place. Every one, they had always been told, was safe and inviolable at Mecca. Why was he allowed thus easily to kill them—the raee of donkeys? According to some, for 6 days, to others for 11 or 17, the massacre lasted. The numbers killed within the precincts of the temple itself are variously given. The holy places were desecrated, irredeemably almost. But not satisfied with this, Abu Tahir laid hands on the supreme palladium, the black stone itself.

Yet he was apparently mistaken in his calculations. So far from turning the hearts of the faithful from a worship which God did not seem to have defended, the remaining Moslems clung all the more fervently to it. God's decree had certainly permitted all those indignities to be put upon his house, but it was not for them to murmur. The stone gone, they covered the place where it had lain with their kisses. As often as Abu Tahir did not distinctly hinder them by force, the caravans went on their usual annual pilgrimage. In the year 327 the emir of the pilgrimage, Abu Tahir's own personal friend, first succeeded in persuading him to conclude a treaty by which the pilgrimage was allowed again, on payment of five denars for every camel and seven for every horse. Yet the black stone, notwithstanding all efforts on the part of the court of Bagdad, was not returned. Abu Tahir seems altogether to have been a man of extraordinary abilities. Of his valor, with which he also knew how to imbue his followers, the following is told: When he had taken away the black stone and desecrated the holy places, he marched, with 500 horse, upon Bagdad. The caliph Moktader sent 30,000 men, under his best general, to meet him. Having ascertained how small were the rebel's resources, the caliph sent a friendly message to him by the general himself, adjuring him by their previous friendship to desist from his insane attempt, and to make good his escape in time. Whereupon he asked the messenger of how many the caliph's forces consisted. "Thirty thousand," was the answer. "Then go," he said, "and tell your master that he has just sent three men too little." And calling for three of his own men, he commanded one of them to stab himself, the second to throw himself into the Tigris, and the third to jump over a precipice, all of which was instantly done. "You see," he continued, "what my warriors are like, and what numbers mean against such as these." The following night he made a sudden attack upon the enemy, routed them completely, and took the general himself prisoner.

Regarding the special form of belief of the Karmathians, as far as it has been preserved to us, it seems in the beginning—before Ismaïlism became that mixture of "naturalism," "materialism," of whilom Sabæism, and of Indian incarnations and transmigrations of later days—to have only been a kind of "reformed" Islam. The prophet Karmat, it was held, had brought a new law into the world. By this, many of the Mohammedan tenets are altered, many ancient ceremonies are abrogated, new forms of prayer are introduced, and an entirely new kind of fast is inculcated. Wine is permitted, as well as a few other things prohibited by the Koran. Certain other of the precepts met in this book are turned into mere allegories. Instead of tithes they gave the fifth part of their property to the Imam. Prayer is but the symbol of obedience to their Imam. Fasting is the symbol of silence, or rather of concealment of the religious doctrine from the stranger.

Abu Tahir died almost absolute master of Arabia, Syria, and Irak, in 332 Hedjrah. It was not until seven years later (950 A.D.), under the reign of two of his brothers who had succeeded him, that the black stone was returned to Mecca for an enormous ransom, and fixed there on the seventh pillar of the mosque called Rahmat (God's mercy), in the presence of the emir of the mosque and others, a Spaniard amongst them. Yet the Karmathians were accused of not having returned the stone itself, or, at all events, of having broken it. Forty camels, it was also said, had been unable to carry it away, while a single one had brought it back; one, moreover, that had been lean when it started, and had become fat when it had reached Mecca.

From that time forth, however, the star of the Karmathians began to wane. Little is heard of them of any import till 375, when they were defeated before Kufa—an event which seems to have put an end to their dominion in Irak and Syria. In 378 they were further defeated in battle by Asfar, and their chief lost his life. They retreated to Lahsa, where they fortified themselves; whereupon Asfar marched to Elkatif, took it, and carried away all the baggage, slaves, and animals of the Karmarthians of that town, and retired to Basra. This seems to have finally ruined the already weak band of that once formidable power, and nothing further is heard of them in history, although they retained Lahsa down to 430, and later still. Even to this day there exist, according to Palgrave, some disaffected remnants of them at Hasa (the modern name of their whilom center and stronghold), and other tracts of the peninsula; and their antagonism against Mohammedanism, which they have utterly abrogated among themselves, so far from being abated, bids fair to break out anew into open rebellion at the first opportunity.—

See Weil, *Gesch. d. Chalifen;* De Goeje, *Mémoire sur les Carmathes*, etc.; Silvestre de Sacy, *Religion des Druses;* Sale, *Koran;* Palgrave, *Arabia*, etc.

KARNAK'. See THEBES.

KARNES, a co. in s. Texas; about 850 sq.m.; pop. '80, 3,270. The surface for the most part is nearly level. The soil is adapted to pasturage, and furnishes support to large herds of cattle, which are the chief article of export. Valuation of real and personal estate, $800,000. Capital, Helena.

KAROO' BOKADAM', a harmless fresh-water snake of India, 4 ft. long.

KARR, JEAN ALPHONSE, a French literary man of considerable eminence, was b. at Paris Nov. 24, 1808. After getting his preliminary education at home from his father, who was a distinguished pianist, he passed with much distinction through the curriculum of the college Bourbon, in which he afterwards, while very young, became a teacher. While employed in this institution, he fell in love, and began to cultivate the muses; and a copy of verses which he sent to the satirical journal, the *Figaro*, formed his introduction to the literary career. His verses were not accepted by the *Figaro*, but its editor asked him to send something in prose, and the result was that he became a regular contributor to the journal. Disappointed in his attachment, he revealed to the world the story of his grief in a novel entitled *Sous les Tilleuls* (1832, 2 vols. 8vo). A youthful desire to astonish, a determination to seem original, made many ignore the real originality of this work; and the curious blending of irony and sentiment, of good sense and nonsense, which form the author's manner, was puzzling to simple people; but the critics declared the book charming; and the public, to whom youthful traits in a a novel are never unpleasing, on the whole concurred in the verdict. Encouraged by the success he had met with, Karr soon produced a second novel, which did not diminish his reputation (*Une Heure trop Tard*, 1833); and thereafter, year after year, he produced new works, until he has become a prolific author, and a recognized popular favorite. *Fa Diéze* appeared in 1834; *Vendredi Soir* in 1835; *Le Chemin plus Court* in 1836, the last a work in which he again rehearsed the experiences of his youth—at least, it is popularly believed that in it he told the world his own story. He has since published *Einerley* (1838); *Genevieve* (1838, 2 vols.); *Clotilde* (1839); *Hortense* (1842); *Am Rauchen* (1842); *Pour ne pas être Treize* and *De Midi à quatorze Heures* (1842); *Feu Bressier* (1845, 2 vols.), originally published in the *Revue des Deux Mondes; Voyage autour de mon Jardin* (1845, 2 vols.); *La Famille Alain* (1848, 3 vols.); *Histoire de Rose et de Jean Duchemin* (1849); *Les Fées de la Mer* (1850); *Clovis Gosselin* (1851); *Contes et Nouvelles* (1852). *Agathe et Cecile; Fort en Thème; Soirées de Sainte-Adresse; Les Femmes; Raoul; Lettres écrite de mon Jardin; Au Bord de la Mer*, appeared between 1852 and 1855; *Promenades hors de mon Jardin* was published in 1857; *La Penelope Normande* in 1858; *La Pêche en Eau douce et en Eau salée*, and the *Dictionnaire du Pécheur*, in 1860. The publication of a complete edition of his works commenced in 1860. The letters and sketches which he has from time to time written from Nice, his place of residence in later years—upon horticulture, and flowers, and fishes—the pleasures of the country and the seaside—have been among the most delightful and popular of his works.

In 1839 M. Karr became chief editor of the *Figaro*, and in the same year he founded a monthly satirical journal called *Les Guêpes*, which he long conducted with the most brilliant success, gaining for himself a very high reputation as a wit and satirist, but making, as was natural, many enemies, of whom one, a lady, made an attempt upon his life, which happily proved abortive. Several volumes of *Les Guêpes* have been reprinted; so also have been three volumes of sketches, which, under the title of *Bourdonnements*, he began to contribute to the *Siècle* in 1852. M. Karr has contributed very largely to periodicals, from which, indeed, many of his works have been republished. At Nice, where he has lived for many years past, he has occupied himself—combining the man of business with the enthusiast—with the growth of flowers and fruits; and the most beautiful bouquets sold in Paris are made up of the produce of his garden. Several new varieties of flowers, especially a dahlia, bear his name.

KARROO' is the original Hottentot term, now generally adopted into the language of physical geography, for the immense barren tracts of table-lands, about 2,000 ft. above the sea-level, which occupy such a large portion of the surface of the Cape Colony and the region n. of it. The karroos of South Africa are generally composed of shallow beds of the richest clay-soil, resting on a substratum of slaty rock, and only want the fertilizing power of water to render them as productive as any other part of the surface. After heavy rains, luxuriant vegetation quickly springs up, which as quickly perishes; and the different rivers shown on maps as crossing the karroos, are generally little more than dry water-courses, with strings of standing pools in their beds. In the most barren portions the soil is much impregnated with alkaline matter.

The principal karroos of the Cape Colony are found extending in a north-easterly direction, between the Roggeveld and Nieuveld mountains and the coast ranges, forming a belt of table-land about 350 m. in length, with an average width of 60 m., and only inhabited by the Boers in the winter season, when water and grass are abundant.

Within the last few years, by the introduction of merino sheep, and the construction of dams, land in the karroo is becoming more valuable.

KARS, lately a Turkish stronghold, now a frontier fortress of Russian Armenia, lies about 110 m. n.e. of Erzroom. It is situated on a table-land of upwards of 6,000 ft. in elevation; the climate is therefore rather severe. Pop. 12,000, mostly Armenians, who carry on an active transit trade. In 1828 it was taken from the Turks by the Russians under Paskevitch. Kars was brilliantly defended by the Turks under gen. Williams for six months in 1855. At the beginning of the war of 1877–78, Kars was invested by the Russians, but relieved in July by Mukhtar pasha; besieged again in autumn, it was carried by storm Nov. 18, 1877. Kars, long a bulwark of the Ottoman empire in Asia, was one of the Armenian fortresses the cession of which to Russia was agreed to by the Berlin congress in 1878.

KAR'SHI (anc. *Nakhsheb*), the second city in size and commercial importance of the khanat of Bokhara, central Asia, is situated on the Shehri Sebz river, 90 m. s.e. of Bokhara city. Karshi is surrounded by cultivated land and numerous gardens. It consists of the city proper and a weakly fortified citadel, has ten caravansaries and a well-supplied bazaar, and is considered likely to be of great importance in the transit-trade organized between Bokhara, Cabul, and India. Karshi is distinguished for the fabrication of knives of various kinds, which are exported to all parts of central Asia, as also to Persia, Arabia, and Turkey, where they realize three or four times the cost price. According to Vámbéry, one kind, with Damascus blades, and handles with gold and silver inlaid, are worked with great taste, and might, both for durability and temper, put to shame the most famous produce of Sheffield and Birmingham. The inhabitants, estimated at about 25,000, are for the most part Usbegs, with a mixture of Tadjiks, Indians, Afghans, and Jews; they are distinguished by their cheerfulness and light-heartedness. The Jews have the privilege of riding even in the interior of the city, which they are not allowed to do in any other part of Bokhara.—See Vámbéry's *Travels in Central Asia* (1864).

KARSPINSKI', Franciszek, 1745–1823; b. Poland; having received his early education under the direction of the Jesuit fathers, lived both in Vienna and Galicia as agent for landed estates. In 1783 he appeared at the court of Stanislaus Augustus, king of Poland, as secretary of prince Adam Czartoryski, in Warsaw. Being averse to the life, either of courts or of a tutor in noble houses, in 1791 he rented two estates in Lithuania for 50 years, and remained there the rest of his life, a great benefactor to his tenants. His poems, which are national, are remarkable for their depth, simplicity, and sweetness. His writings, in 4 vols., were published by Demochowski at Warsaw in 1821; new edition, Leipsic, 1836; and contain, besides songs and idyls, a translation of the Psalms, a tragedy called *Judyta*, and several prose essays. His autobiography is in the hand-book called *Znicz* at Wilna, 1834.

KARSTEN, Hermann Karl, b. Prussia, 1817; after completing his studies in Berlin, devoting himself chiefly to botany, undertook a journey through the northern portion of South America, which occupied him, with a brief interval of rest, during 13 years. He made a profound study of the flora of the United States of Colombia, and also of palms, and after his return to Berlin—where he was appointed professor of botany—he published *Die Vegetationsorgane der Palmen; Flora Columbiæ*, and *Chemismus der Pflanzencelle*

KARSTEN, Karl Johann Bernhard, 1782–1853; b. Germany; studied law at Rostock, but applied himself to medicine, and in 1801 assisted in editing Scheerer's *Universal Journal of Chemistry*. In 1803 he became referendary, and soon after assessor, in the superior mining office in Breslau. In 1806 he went to upper Silesia to take charge of mining, and to furnish the fortress with munitions. He erected the zinc works of Lidognia, in which zinc was first made from cadmia. He gave lectures in Breslau until, in 1819, he was called into the ministry of the interior of Berlin, as private, superior, mining counselor. He wrote *Hand-Book of Metallurgy; Elements of Metallurgy and Metallurgical Science; Metallurgical Travels Through a part of Bavaria and Austria; Sketches of German Mining; Philosophy of Chemistry; Archives of Mining and Metallurgy*, 20 vols.; and, as a continuation of this work, *Archives of Mineralogy, Geognosy, Mining, and Metallurgy*, in 25 vols.

KARTTIKEYA, the Hindu Mars, or god of war, a being represented by the Purânic legends as sprung from Siva, after a most miraculous fashion. The germ of Karttikeya, having fallen into the Ganges, it was on the banks of this river, in a meadow of Sara grass, that the offspring of Siva arose; and as it happened that he was seen by six nymphs, the *Krittikâs* (or Pleiades), the child assumed six faces, to receive nurture from each. Grown up, he fulfilled his mission in killing Târaka, the demon king, whose power, acquired by penances and austerities, threatened the very existence of the gods. He accomplished, besides, other heroic deeds in his battles with the giants, and became the commander-in-chief of the divine armies. Having been brought up by the Krittikâs, he is called *Kárttikeya*, or *Shânmâtura*, the son of six mothers; and from the circumstances adverted to, he bears also the names of *Gângeya*, the son of Gangâ; *Sarabhû*, reared in Sara grass; *Shanmukha*, the god with the six faces, etc. One of his common appellations is *Kumará*, youthful, since he is generally represented as a fine youth; and

as he is riding on a peacock, he receives sometimes an epithet like *Sikhivâhâna*, or "the god whose vehicle is the peacock."

KASAM. See KAZAN, *ante.*

KASANLIK', or KEZANLIK, a t. of European Turkey, at the base of the Balkan mountains, 85 m. n.w. of Adrianople, on the Tundja, an affluent of the Maritza. Kasanlik was often heard of during the Russo-Turkish war of 1877. Pop. 10,000.

KASBIN, or KAZVIN. See CASBIN, *ante.*

KAS'CHAU, a t. of Hungary, is situated in the beautiful valley of the Hernad, surrounded by vine-clad mountains, 130 m. n.e. of Pesth. It contains 15 churches, of which that of St. Elizabeth (built 1342–82) is said to be by far the finest Gothic edifice in Hungary. Stoneware, leather, cloth, sugar, tobacco, and paper are manufactured. Pop., inclusive of suburbs (1880), 26,097. Two battles were fought near Kaschau during the Hungarian revolution, both of which the Austrians gained.

KASHAN', one of the most flourishing towns of Persia, is situated in a well-peopled, well-cultivated district, 3,690 ft. above sea-level, and 92 m. n. of Ispahan. The vicinity is celebrated for its fruit, and the town for its extensive manufactures of silk-stuffs, gold brocade, carpets, and copper-wares. It is a large town, and abounds, like all Persian towns, in mosques, bazaars, baths, etc. Pop. 30,000.

KASHGAR'. See CASHGAR.

KASHIN', a t. of Russia, in the government of Tver, and 80 m. e. of Tver, on the Kashinka, a tributary of the Volga. Great part of the town is old and ill built, but it is a place of much activity, rapidly increasing in prosperity and population. Tanning is a principal branch of trade. A kind of paint for the toilet is also largely manufactured. Kashin is celebrated for the extraordinary number of its churches and other ecclesiastical buildings. Pop. '80, 8,000.

KASHMIR'. See CASHMERE, *ante.*

KASKAS'KIA, a river of Illinois, United States, which rises in the eastern part of the state, and running s.w., falls into the Mississippi at Kaskaskia. It is navigable to Vandalia, 150 miles.

KASKAS'KIA, a t. in Randolph co., Ill., on the right bank of the Kaskaskia river. It is the oldest town in Illinois, of which it was the capital till 1818. Its founders were Frenchmen, and most of the present inhabitants are of French descent. It has little business. Pop. '80, 326.

KASKAS'KIA INDIANS, a tribe formerly settled in Illinois, whence they were removed by the U. S. government in 1832 to the territory which is now included in Kansas, and in 1867 to a reservation in Indian territory, where the remainder of them, very few in number, still reside. There is a tribal connection between the Kaskaskias and the Peorias and other Illinois Indians. The former are rather more intelligent than is usually the case, and have taken kindly to civilization.

KASSIMOF', a t. in the n.e. of the government of Riazan, European Russia, on the left bank of the Oka, dates from the 12th century. Pop. '80, 14,102. The chief branches of industry are tanning, rope-making, and chemicals. In the vicinity are several tombstones and other interesting relics of the time of the Mongolian rule.

KASSON, JOHN A., b. Vt., 1822; graduated in 1842 at the university of Vermont; practiced law at St. Louis; in 1857 removed to Iowa; became assistant postmaster-general in 1861; elected to congress in 1862, '64, '72, and '74; and in 1877 appointed by president Hayes minister to Austria.

KASTAMU'NI, a t. of Turkey in Asia, in the n. of Anatolia, is capital of an eyalet of the same name. The glory of this city has to a great extent departed. It contains thirty mosques, and about as many public baths; but its industrial products comprise only cotton goods to a small extent, and some copper-wares. Pop. 12,350.

KATAH'DIN, or KTAADN, the highest mountain in Maine, 5,385 ft. above the sea. It is in Piscataquis co., in a dense wilderness and difficult of access, and the view from the summit is wild and grand.

KATER, HENRY, a mechanist of considerable eminence, was b. at Bristol in 1777, and d. in London in 1830. At his father's desire, he began the study of the law, but in 1794 relinquished his legal studies, and obtained a commission in the 12th regiment of foot, then stationed in India. During the following year he was actively engaged, under col. Lambton, in the trigonometric survey of India; and on his return in 1808, became a student in the senior department at Sandhurst, and was shortly afterwards promoted to a company in the 62d regiment.

His contributions to science are chiefly to be found in the *Philosophical Transactions*, to which, between the years 1813 and 1828, he contributed fifteen papers. The most important of these memoirs are those relating to his determination of the length of the seconds' pendulum at the latitude of London; and those which describe his "floating collimator," an instrument for aiding the determination of the horizontal or zenith points.

For the invention of this instrument, he received the gold medal of the royal astronomical society. In addition to these memoirs, he was, conjointly with Dr. Lardner, the author of "A Treatise on Mechanics" in the *Cabinet Cyclopædia*. Most of the learned societies in Great Britain and on the continent enrolled him among their members. His memoirs on the verification and comparison of the standards of weights and measures of Great Britain and Ireland, induced the emperor of Russia to employ him to construct standards for the weights and measures of that country; and for these labors he received the order of St. Anne, and a diamond snuff-box. He died from an affection of the lungs in the 53d year of his age.

KATHAY, or CATHAY. See CHINA, *ante*.

KATIF′, a fortified t. in Arabia, on the Persian gulf, lat. 26° 25′ n., long. 50° east. It has a trade in pearls from the adjacent fishery.

KATKOFF′, MIKHAIL NIKIFOROVITCH, b. in Moscow, 1820. After finishing his studies in Königsberg and Berlin, he was for several years professor in philosophy in Moscow. He relinquished this position in 1856, to devote himself to journalism, in which he has acquired an immense influence. He is a fearless opponent of the wrongs suffered by the people of Russia under their government.

KATMANDU′, or CATMANDOO. See KHATMANDU, *ante*.

KA′TRINE, LOCH, one of the most celebrated of Scottish lakes, is situated near the s. w. border of Perthshire. It is 8 m. in length, and three-quarters of a mile in mean breadth; greatest depth, 78 fathoms; height above the sea, about 370 feet. Its shape is serpentine, and displays great variety of shore and background. Ben Venue and Ben An are on its banks. It contains several islets, one of which, Ellen's isle, is the center of the action of the *Lady of the Lake*. Several of Wordsworth's lyrics also were written on subjects suggested in this locality.

The waters of Loch Katrine are remarkably pure, having only one degree of hardness, and in all, two grains of solid matter to the gallon. The water-supply of the city of Glasgow (q.v.) is drawn from this lake and those connected with it (Vennachar and Achray). The water is conducted first by a tunnel 6,975 ft. long through a mountain, and then by aqueducts, pipes, and tunnels, to the reservoir near the city—a distance of upwards of 25 miles.

KAT RIVER, a branch of the Great Fish river, in the Cape Colony, rising in the Didimaberg, in the valleys of which, in 1828, were settled, under the care of the London mission society, a large body of Hottentots and Bastaards, who occupied the country formerly inhabited by the Kaffer chief Macomo and his people. But in the commencement of the war of 1850, the credulous Hottentot population, believing that the colonists were about to drive them from their farms, threw themselves into the arms of the Kaffer chiefs, and expelling the missionaries, invaded the colony. This led to the breaking up of the settlement as a mission station and exclusive native reserve; and it now forms the division of Stockenstroem, and is inhabited by a rather dense, mixed population of Hottentots, Fingoes, and Europeans. It is one of the best watered, wooded, and fertile districts in the Cape Colony, and includes an area of about 400 sq. miles.

KATSENA, a large, but now desolate t. of Central Africa, capital of a province of the same name, subject to the sultan of Sókoto, is situated in a beautiful and salubrious district in lat. 12° 54′ n., and long. 7° 25′ e. 90 m. n.w. of Kanó. It is surrounded by a wall about 14 m. in circuit, and contained at one time at least 100,000 inhabitants. In 1807 the conquering Fúlbe assailed it, and a war was commenced, which lasted for upwards of seven years. The capture of Katsena was achieved only through its destruction. It has now a population of from 7,000 to 8,000, and Kanó (q.v.) has taken its place as the center of commerce for the country.

KATSU ÁWA, a Japanese statesman, b. about 1820. Of progressive ideas he became, after witnessing com. Perry's actions and methods in 1854, a strong adherent to the party representing "New Japan." As one of the officers in the tycoon's navy he commanded the steamer that in 1861 carried the Japanese embassy to America. In 1868, through his friendship with Saigo (see SAIGO), he saved Yedo from the torch. At that time the minister of the tycoon, he advised his master to resign, which the latter did. The assassination of Katsu Áwa was three times attempted by disappointed retainers of the tycoon. Retiring with his master to Shidzuoka, Katsu Áwa was recalled by the mikado, and made secretary of the navy and afterward imperial adviser. Katsu Áwa sent his son to the United States to study at the naval academy at Annapolis, from which he graduated.

KATTIMUNDOO′, or CUTTIMUNDOO, a substance somewhat resembling gutta-percha. It is the milky juice of the East Indian plant, *euphorbia merifolia*, and is either obtained as a natural gum, which has oozed through the bark, or by making incisions and collecting the juice which flows. It is much used in India as a cement for knife-handles and for similar purposes, but is not exported to other countries.

KATTYWAR′, a term originally applied to one of the ten districts of the peninsula of Guzerat, has gradually been made to extend, as a collective name, to the whole of them. In this larger sense, it stretches in n. lat. from 20° 42′ to 23° 10′, and in e. long. from 69°

5′ to 72° 14′, containing 21,000 sq.m., and 1,475,685 inhabitants. This province of India, touching on part of its eastern frontier the district of Ahmedabad, is everywhere else bounded by water—the runn and gulf of Cutch, the Arabian sea, and the gulf of Cambay. Politically, the country is divided among more than 200 chiefs, some of them paying tribute to the Guicower of Guzerat, and the rest to the British government, but all of them being under the protection of the latter since the year 1820. Between them these petty princes have a revenue of £865,270 sterling, and a force of about 4,000 cavalry and 8,000 infantry. The climate is unhealthy, and the surface is generally undulating. The principal crops are millet, maize, wheat, sugar, and cotton.

KATUN′GA, or EYEO, a t. of Gando, West Africa, 25 m. from the mouth of a tributary of the Niger, and about 200 m. n.e. of Abomey. It is surrounded by a mud wall and a ditch. There is a brisk trade in yams, corn, goats, sheep, fowls, native cloths, etc. Pop. supposed to be about 15,000.

KÂTYÂYANA, a name of great celebrity in the literary history of India. It belongs, in all probability, to several personages renowned for their contributions to the grammatical and ritual literature of the Brahmanical Hindus; but it is met with also amongst the names of the chief disciples of the Buddha, S′âkyamuni.—The most celebrated personage of this name, however, is Kâtyâyana, the critic of the great grammarian Pân′ini; and he is most likely the same with the Kâtyâyana who wrote the grammatical treatise called the *Prâtis′ákhya* of the white Yajurveda. See VEDA. Professor Goldstücker, in his *Pân′ini*, etc., *his Place in Sanskrit Literature* (London, 1861), has shown that he cannot have been a contemporary of Pânini, as was generally assumed; and in a paper recently read by him before the Royal Asiatic society (Feb., 1863) he has proved that this Kâtyâyana lived at the same time as the great grammarian Patanjali, whose date he had previously fixed between 140 and 120 before the Christian era. See PANTANJALI.

KA′TYDID, *Platyphyllum concavum*, a species of grasshopper (q.v.) of a pale-green color, a native of North America, very plentiful in some parts of the United States, where its peculiar note is always to be heard during the summer, from the evening twilight till the middle of the night. This note is almost like a shrill articulation of the three syllables kat-y-did, following each other in quick succession, after which there is a pause or two or three minutes. The organ of sound is a transparent elastic membrane in a strong oval frame in each of the wing-covers; these membranes, by the overlapping of the wing-covers, can be made to rub against one another, and the sound is produced by the friction.

KATZ′BACH, a small river in the Prussian province of Silesia, falling into the Oder at Parchwitz. It has become famous in history from the battle fought on its banks on Aug. 26, 1813, between the French troops under marshal Macdonald and the Prussians under Blucher, in which the latter were completely victorious. The French lost in the battle of the Katzbach 5,000 killed, and 18,000 wounded and prisoners, with 103 cannons, two eagles, and 250 ammunition-wagons.

KAUAI′, the largest of the Hawaiian islands, in lat. 22° n., long. 159° 30′ w.; 527 sq.m.; pop. '72, 4,961. Waileale, the highest peak, near the center, rises about 6,000 feet. West of this is a table-land 3,000 ft. high, of 40 sq.miles. On the w. coast is a sand-bank formed by the wind and constantly encroaching upon the land. The valleys are numerous, and the soil in them is often 10 ft. deep. There are large tracts of arable land. The s.w. portions are dry and sterile. The largest river is the Hanalei, emptying into a harbor of the same name. The principal town is Koloa. This and Nawiliwili have good anchorage. The island gives evidence of volcanic origin. The chief product is sugar; and hides, tallow, and wool are exported. Bread-fruits, bananas, and all tropical fruits grow in abundance.

KAUFFMANN, MARIA ANGELICA, 1741–1807; b. at Coire, in Switzerland; died in Rome. A gifted woman of many accomplishments, especially distinguished as a portrait painter. She was daughter of a painter, exhibiting at the age of 12 intellect of a high order and such familiarity with literature, history, and art as to attract marked attention. Her father, fully appreciative of her talents, devoted himself to her education and took her to Italy. Bishop Neroni of Como, hearing of the rare genius of the child, sent for her, was charmed by her intelligence and beauty, and sat to her for his portrait. It was a success, and at the age of 13 she was already overtaxed with orders. At 20, already celebrated, her father traveled with her to Florence, Parma, Rome, Bologna, Naples, and Venice. At Bologna she executed an etching entitled "The Toilet." At the age of 23 at Rome, she was the friend of Winckelman and Rafael Mengs, both of whom had a high opinion of her skill as an artist. The former sat to her for his portrait, and was enthusiastic in appreciation of her accomplishments. A few years later she was deceived into a marriage with a spurious count Horn, from whom she not long afterwards obtained a divorce. All these years she was engaged on portraits of the eminent men and women of high rank who were attracted by her fame. She accompanied lady Wentworth to England, where she was received with honor in the highest circles, where her beauty, genius, and pure character made her life an ovation. Portraits by her hand were the rage. She joined in the organization of the English royal academy, was one of its original 36 members, held a prominent place in its exhi-

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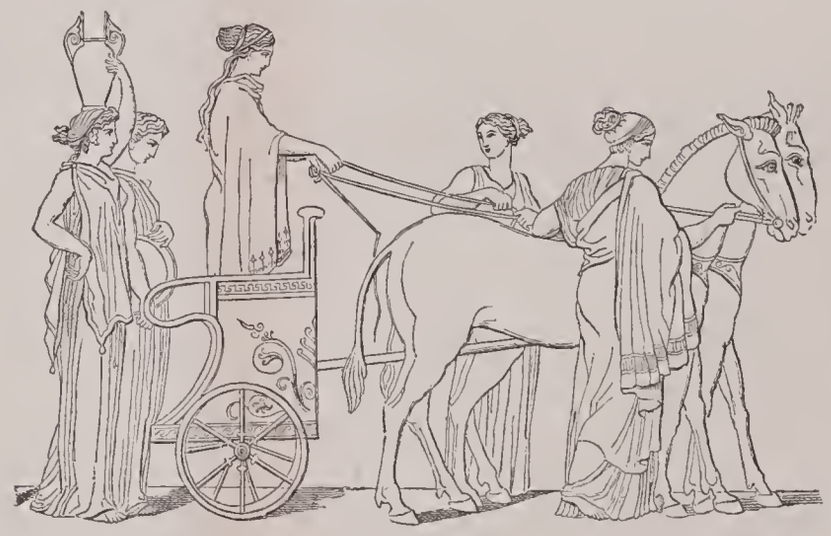

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KAULBACH, AND OTHER ARTISTS.—1. Tradition. 2. Decorative design (Kaulbach). 3. Nausicaa. 4. Christ and Barabbas (Overbeck). 5. Children (Rubens). 6. Madonna (Martin Schongauer). 7. Figure-piece (Terburg).

bitions, and was honored with the warm friendship of sir Joshua Reynolds. When a commission of five was appointed to decorate St. Paul's cathedral, she was associated with Reynolds, West, Bray, and Cipriani on that commission. In 1781, after the death of her father, she married signor Antonio Zucchi, a Venetian, and thenceforward resided in Venice and Rome. At Venice she painted one of her historical pieces, "Leonardo Dying in the Arms of Francis I." At Rome she attracted the friendship of Goethe, Herder, and Klopstock; and her last years were crowned with respect and honor. The list of her works is large. Portraiture of the noted beauties of her time in Italy and England was considered her *forte*. Of the grace and high refinement of her style we have a good example in "The Vestalina," of late years widely known by photographs and miniature copies on porcelain.

KAUFMAN, a co. n.e. of the center of Texas, in the valley of Trinity river; 950 sq.m.; pop. 1880, 15,480. It is well timbered, and has a fertile soil, producing cotton, grain, and live-stock.

KAUFMANN, Constantin Petrovitch von; b. about 1817, in the Baltic provinces of Russia. He won distinction first as an engineer, and afterwards served as chief of staff in the Caucasus. Later he served for a time in the war department, and aided in reorganizing the army. In 1864 he was made governor-general of the military division of Wilna, and in 1867 of the newly-formed division of Turkistan. In the latter position he won great distinction by his success in strengthening and extending Russian influence in central Asia. He waged a successful war against Bokhara, and subjugated the khan of Khiva, the czar's most dangerous enemy in that quarter. He d. 1882.

KAUFMANN, Theodor; b. Uelsen, 1814; studied painting in Hamburg and Munich; and during the political troubles in Germany in 1847–49, he came to the United States. In the war of the rebellion he served in the army, and afterwards lived in Boston. His chief pictures are: "On to Liberty;" "Gen. Sherman near the Watch-fire;" "A Pacific Railway Train Attacked by Indians."

KAULBACH, Wilhelm von, a celebrated German painter, was b. at Arolsen, in the principality of Waldeck, Oct. 15, 1805, and in his 17th year entered the academy of arts at Düsseldorf, where he soon became one of Cornelius's best pupils. He seemed thoroughly penetrated by the severely ideal and allegorical spirit of that great master, yet even from the first he displayed no lack of individual genius. Among his first important productions (1828–29) were six symbolical figures, the best-known of which is "Apollo among the Muses." To the same period belongs a work of a wholly different and even opposite character, "The Madhouse," conceived and executed in the most vigorously realistic spirit. It added immensely to Kaulbach's reputation, and king Ludwig of Bavaria now employed him to decorate duke Maximilian's palace in Munich. For this he executed, in the strictly antique style, 16 frescos illustrating the fable of Psyche and Cupid. His designs from Klopstock, Goethe, and Wieland, for the same monarch, are also worthy of mention. In 1837 Kaulbach completed his "Battle of the Huns," a picture representing the grand legend of the continued struggle in mid-air of the souls of the Huns and Romans who had fallen before the walls of Rome, which was regarded as the culmination of the new German school. Nevertheless, the realism of which we have spoken still found expression in various works. His patient study of Hogarth is quite visible in his illustrations of Schiller, of Goethe's *Faust*, and *Reineke Fuchs*. In 1846 Kaulbach completed what is probably his *chef-d'œuvre*, the "Destruction of Jerusalme by Titus." It is a marvelous mixture of history and symbolism. In 1849 Kaulbach succeeded Cornelius as director of the Bavarian academy of art. In 1859 he finished his "Battle of Salamis." The *grisaille* cartoon (in oil) of Peter Artries is one of his latest and most characteristic works; among his other paintings are "The Tower of Babel," and a series of frescos at Munich. Latterly he painted many portraits. He died April 7, 1874.

KAUNITZ, Wenzelius Anthony, Prince von, Count of Rietberg, a great Austrian statesman, born at Vienna in 1711; studied at Vienna, Leipsic, and Leyden; traveled in England, France, and Italy; and being the head of an ancient and honorable family, soon received important political appointments from the emperor Charles VI. He continued to fill important situations under Maria Theresa. He gained great fame as a diplomatist, in 1748, at the congress of Aix-la-Chapelle. He was afterwards Austrian ambassador at the French court; and in 1753 was appointed court and state chancellor, and in 1756 chancellor also for the Netherlands and Italy, and continued for almost 40 years to have the principal direction of Austrian politics. The project of the partition of Poland originated with him. He had so much to do in the management of the political affairs of Europe that he was jocularly called the European coach-driver. He was very vain and confident in his own abilities, so that his highest praise for anything which he thought well done was to say with an oath: "I could not have done it better myself." He was narrow in his political views, regarding exclusively the supposed interests of Austria, but severe and upright according to his notion of his duty. He took a very active part in the ecclesiastical reforms of Joseph II., so that at Rome he was styled *the heretical minister*. He was a liberal patron of the arts and sciences. He

retired from public life on account of old age, when Francis II. ascended the throne, and died June 27, 1794.

KAU'RI, or KOWRIE, or K. PINE, *Dammara australis*, a species of dammar (q.v.), a native of New Zealand. It is a tree of great size and beauty, and is said sometimes to attain a height of 140 ft. or more, with whorls of branches, the lower of which die off as it becomes old. The timber is white, close-grained, durable, flexible, and very valuable for masts, yards, and planks. It is much used for masts in the British navy, no other being considered equal to them. The Fiji islands, New Hebrides, and Australia produce other species, the timber of all which is sold under the name of *K. pine*, although there are differences of quality. All of them are trees of dark dense foliage. All of them also produce a resin called K. RESIN, or K. GUM, and sometimes Australian copal and Australian dammar, of which large quantities are imported into Britain and North America, chiefly from New Zealand. It is sometimes found in pieces as large as a child's head, of a dull amber color, where forests of these trees have formerly grown, and is obtained by digging. It is also collected from the trees from which it has newly exuded, and is then of a whitish color. It is used for making varnishes, etc.

KAVA. See AVA.

KAVANAGH, JULIA, 1824–77; b. in Ireland; educated in France, but after 1844 resided in London. She was a remarkably graceful and intelligent writer of fiction, her works being devoted mainly to the illustration of home life and domestic traits. She wrote also several biographical sketches, including *French Women of Letters; English Women of Letters;* and *Women of Christianity Exemplary for Piety.* Among her works of fiction are *Nathalie; Daisy Burns; Adèle; Grace Lee;* and *Sybil's Second Love.*

KAVANAUGH, HUBBARD HINDE, D.D.; b. Ky., 1802. He joined the Kentucky Methodist Episcopal conference in 1823, and was eminently successful as an itinerant. In 1839 he was superintendent of public instruction in Kentucky, and in 1854 was ordained a bishop of the Methodist church, south. He d. 1884.

KAVI, the ancient sacred language of Java. There are three dialects of the Javanese—the vulgar tongue, the polite dialect, and the ancient or recondite. All of these have words from the Sanskrit, Arabic, and Tehigu, brought in, not by conquest, but by religion and commerce. The largest infusion of these is of Sanskrit. In the common language of Java the proportion of Sanskrit is about 11 in 100, but in the recondite it is about 40 per cent. The introduction of Sanskrit is traced to the immigration of the Brahmans from India about 2,000 years ago, who brought with them also Hindu civilization and religion. Kavi holds the same relation to the Javanese that the Sanskrit does to the language of India. The word *kavi* signifies learned or wise, and is used because in this dialect is the Javanese literature, consisting of poems, histories, romances, etc. In the 15th c. the Kavi language, with Hinduism, was driven from the island to the small island of Bali.

KAYE, JOHN, D.D., 1783–1853; graduated at Cambridge, where he became successively master and regius professor of divinity. Was made bishop of Bristol in 1820, and 7 years later bishop of Lincoln. He made a study of the Greek and Latin fathers, and published *Writings and Opinions of Clement of Alexandria; Writings and Opinions of Justyn Martyr; The Ecclesiastical History of the Second and Third Centuries, illustrated from the Writings of Tertullian;* and *Government of the Church during the First Three Centuries.*

KAYE, Sir JOHN WILLIAM, 1814–76; was for several years employed in the military service of the East India company, and wrote a number of works on oriental subjects, including *History of the War in Afghanistan; Life and Correspondence of Lord Metcalfe; Life of Sir John Malcolm; History of the Sepoy War,* etc.

KAZAN', a t. of Russia, capital of the government, and ancient capital of the kingdom of the same name, is situated on the river Kazanka, 4 m. from the n. bank of the Volga, and 200 m. e.s.e. of Nijni-Novgorod. It was founded in 1257 by a Tartar tribe, and after various vicissitudes was made the capital of an independent kingdom, by the khan of the Golden Horde, which flourished in the 15th century. In 1552 the Russians, under Iwan the terrible, carried the town after a bloody siege, and put an end to the existence of the kingdom. Pop. '80, 94,170. Kazan contains 30 churches, 9 convents, and 16 mosques; a university attended by 450 students, and having a library of 80,000 vols. There are 126 factories in Kazan, the chief manufactures being soap and leather.

KAZAN (in Tartar, *a golden-bottomed kettle*), a government of Russia, between Astrakhan on the e. and the government of Nijni-Novgorod on the west. Area, 24,505 sq.m., three-fourths of which is cultivated, one-eighth in pastures, and one-eighth covered with forests. Pop. '80, 1,872,437—mostly Christians, with a number of Moslems, and some idolaters. The soil is for the most part fertile; corn is exported; the climate is rather severe, but healthy. Cattle-breeding, keeping of bees, and fishing are the chief employments of the people. There is an extensive trade in timber, pitch, and wooden dishes.

KAZIMIRZ', a t. of Poland, in the government of Lublin, on the right bank of the Vistula, 30 m. e.s.e. of Radom. It was founded in 1350 and formerly carried on a flourishing trade in grain, in which a number of English commercial houses established here

were engaged. Kazimirz contained in 1867 only 2,606 inhabitants, of whom a great many were Jews.

KAZ'INCZY, Ferencz, 1759–1831; a Hungarian author and editor, whose writings include plays, poems, travel-sketches, and translations from the English, French, and German. He received a college education and studied law, but followed literature as a profession, and by earnest and persistent effort accomplished much towards the restoration of the Magyar language and the abolition of the use of Latin in its place. In 1794, having been concerned in a political conspiracy, he was brought to trial and sentenced to death, but obtained a commutation and was imprisoned for several years. The latter portion of his life was peacefully occupied in general literary pursuits.

KEAN, Charles John, second son of Edmund, was b. in 1811, and educated at Eton. When his father fell into ill-health he adopted the stage as a profession. He was popular in the provinces and in America before he achieved reputation in London. He married, in 1842, Miss Ellen Tree, and till his death in 1868 they acted together. He became the lessee of the Princess's theater in 1850, and was the director of the royal theatricals. His management at the Princess's theater was distinguished chiefly by the splendid manner in which certain plays were produced. The utmost pains were expended on scenery and dress, and as much care was taken to avoid anachronisms as to secure good acting. *Sardanapalus*, produced in 1853, was perhaps the most striking of these "restorations," as they are called. Kean attempted the parts in which his father shone, but did not succeed in being more than a comparative to the superlative which the elder generation of playgoers remembered. In a lower line of character, and in such pieces as the *Corsican Brothers; The Wife's Secret;* and *Louis XI.*, he was more at home than in the world of Shakespeare.

KEAN, Edmund, was b. in London about 1787. His father was a stage-carpenter; his mother an actress. From his infancy the glare of the foot-lights was familiar to him as the light of common day. While but a child, he made his appearance on the boards, and on one occasion gave a recitation before George III. at Windsor castle. In 1803 he joined a strolling company in Scotland, and for 11 years he performed in country theaters. He came to London in 1814, in which year he appeared as "Shylock" in Drury Lane, his immense popularity filling the coffers of the managing committee, and enriching himself. All London flocked to hear him; and Hazlitt Hunt and Lamb, who were constantly in the pit, declared that his acting was like "teaching Shakespeare by a flash of lightning." He twice visited America, made meteoric visits to the provinces, and ever in the heydey of his powers "the pit rose at him," to use his own expression. Unhappily, his habits were dissolute, and almost constant intoxication impaired his memory and his physical vigor. In 1833, while his son Charles was playing "Iago" to his "Othello," the great actor broke down, and was led off the stage. He never again appeared in public. His death took place at Richmond May 15, 1833. His great characters were "Othello," "Shylock," "Richard III.," and "Sir Giles Overreach." He was amongst actors what Byron is amongst poets; and Napoleon amongst generals.

KEAN, Edmund (*ante*), made his first professional visit to the United States in 1820, and was received at first with great enthusiasm; but in the following spring, having broken an engagement in Boston on account of the smallness of the audiences attracted by his fame, he was severely censured, and not long afterwards returned to England, where worse troubles, caused by his vices, awaited him. An action was brought against him in 1825 for criminal conversation with the wife of another man, and he was mulcted for damages in the sum of £800. In consequence of this scandal he was hissed from the stage in London and Edinburgh. In the same year he came again to the United States, but was met at first with riotous hostility wherever he attempted to act. Having made an apology for his conduct, he appeared in New York and Philadelphia, but was denied an opportunity to act in Boston and Baltimore. The Tuscarora Indians, however, elected him a chief, giving him the name of Atlantenouidet. This honor not being sufficient to retain him in this country, he returned to England in 1826, where his health and spirits were soon completely broken by his habits of intoxication, from which he never recovered. His dramatic talent was of a high order, and, if his intellect had not been beclouded by strong drink, he would no doubt have achieved an honorable and enduring fame. In spite of this drawback his acting was at times so grand as to excite the wonder and delight of his audiences.

KEAN, Ellen (Tree), 1805–80; b. London; married to Charles John Kean in 1842. She made her first appearance upon the stage at Covent Garden theater, in London, in 1823, and soon established a high reputation both in tragedy and comedy. In 1836 she came to the United States, and here as well as in Canada met with great success. Upon the death of her husband in 1868 she retired from the stage.

KEANE, John, first Lord Keane, 1781–1844; b. at Belmont, co. Waterford, Ireland. Entering the army as ensign in his 13th year, he served in the campaign in Egypt as aid-de-camp to lord Cavan. In Spain he gained the rank of maj.gen., and in 1814 was at first assigned to the command of the land forces sent to attack New Orleans, but, on being superseded by sir Edward Pakenham, he served in the expedition in a subordinate capacity and was twice wounded. In 1823 he was appointed commander-

in-chief of the army of the West Indies, serving until 1830, and for a part of the time administering the civil government of Jamaica. In 1833 he was transferred to the service in India, and in 1839 succeeded in taking the fortress of Ghuznee in Afghanistan, which till then had been thought impregnable. For this he was raised to the peerage as baron Keane, receiving at the same time a pension of £2,000 from the East India company.

KEANE, JOHN JOSEPH, D.D. See page 889.

KEANG-SI, an inland province of China, lies immediately n.w. of the maritime province of Fo-kien. See CHINESE EMPIRE.

KEANG-SU′, an important maritime province of China, the wealthiest and most densely peopled district of the empire. See CHINESE EMPIRE.

KEARNEY: co., Kan. See page 889.

KEARNEY, a co. in the s. part of Nebraska, bounded on the n. by the Platte river, intersected by the Burlington and Missouri river railroad; 500 sq.m.; pop. '80, 4,072. The surface is slightly undulatory, and the soil specially adapted to pasturage. Timber is scarce. Capital, Minden.

KEARNEY, DENIS, b. Ireland, 1847; at the age of six years was employed as post boy in his native village, Oakmont, co. Cork; and when 11 years old went to sea as a cabin-boy on a voyage to New York. From this time he followed the sea until 1872, when, being in San Francisco, he obtained employment as foreman of a gang of stevedores, and soon after went into the draying business on his own account. He interested himself in local politics, and was secretary of a club. In 1877, influenced by the interference with his business of bonded draymen, he began to incite the laboring men of San Francisco to an incendiary condition of mind, and soon gained great ascendency over them. Mass meetings were organized on the "Sand-lots," a suburb of the city, where Kearney ruled supreme, and where he soon attracted general public notice on account of the savage and uncompromising nature of his attacks upon capital, Chinese labor, and other so-called grievances. His language became noted for its blasphemous and ribald character, and this caused the associated press to give him a wider notoriety throughout the country than he would otherwise have gained. His influence rapidly increased, until his powerful following were able to pack a constitutional convention, and organize a new constitution for the great state of California which was largely in their own apparent interest, and certainly most detrimental to capital and vested interests within the state. Emboldened by his success, Kearney grew more intemperate in his language and more savage in his threats. In the summer of 1878 he visited the eastern states, accompanied by a private secretary, making something in the nature of a "progress," and delivering his excited and intemperate speeches in the leading Atlantic cities and in the west. He did not succeed in engrossing public attention or interest to any great extent, and returned to California without having made the impression which he had anticipated. Towards the end of 1879 Kearney became so offensive to the authorities of San Francisco that he was several times arrested, and early in 1880 was tried for the use of slanderous and incendiary language in public, and sentenced to six months' imprisonment in the house of correction. He had by this time fallen under the displeasure of his own adherents, who accused him of treachery, and by whom he was even threatened with personal violence. So that, on his release from prison, it was readily perceived that his influence had gone from him, and his name soon died out of public mention.

KEARNEY, or KEARNY, LAWRENCE, 1789–1868; b. N. J.; entered the U. S. navy as a midshipman in 1807, and performed important services during the war of 1812. At the close of the war he was dispatched to the gulf of Mexico and the Caribbean sea, at this time infested with pirates, whose strongholds were hidden among the West India islands and along the coast. He discovered and destroyed their haunts and captured their vessels, and rid those waters of what was becoming a serious disturbance to commerce. In 1827 he performed a similar service for the Levant, breaking up the nests of the Greek pirates, and destroying their ships. He was promoted to be lieut. in 1813, commander in 1825, capt. in 1832, and commodore in 1866. In 1841 he was appointed to the command of the East India squadron, and succeeded in gaining certain trade concessions from the Chinese, which were afterwards made permanent by treaty stipulations.

KEARNEY, or KEARNY, PHILIP, 1815–62; b. New York, graduated at Columbia college and studied law, but accepted the appointment of lieut. in the 1st U. S. dragoons in 1837. Being ordered to repair to France to study and report upon the French system of cavalry tactics, he entered the polytechnic school at Saumur, and afterwards volunteered to the ranks of the *chasseurs d'Afrique*, and fought with this celebrated corps in Egypt with such distinction that he was decorated with the cross of the legion of honor. From 1840 to the outbreak of the Mexican war he was on the staff of gen. Scott, with whom he served through the entire campaign in Mexico, winning a reputation for daring and determination unexcelled by that of any other American officer. For conspicuous gallantry in the fights of Contreras and Churubusco, he was breveted maj.; and, during a magnificent cavalry charge at one of the gates of the city of Mexico, he lost his left arm. In 1851 Kearney resigned from the army and visited Europe, where he devoted himself, however, to the study of his profession, and on the

outbreak of the Italian war, in 1859, entered the French service as a volunteer aid. Being engaged at Magenta and Solferino he was once more decorated, this time by the emperor in person. He entered the war of the rebellion as a brig.gen. of volunteers in the union army, but was soon placed in command of a division in gen. Heintzelman's corps, in which position he distinguished himself at Williamsburg and during the seven days of the peninsula retreat. Gen. Kearney was made a maj.gen. of volunteers July 4, 1862, and on Sept. 1 following was killed in the battle of Chantilly, Va. He was an efficient and trustworthy, as well as a brave and dashing officer, and his loss was mourned by the entire country.

KEARNY, Stephen Watts, 1794–1848; b. N. J.; was appointed a lieut. in the 13th U. S. infantry in 1812, and received rapid promotion for meritorious conduct. In 1846 he was brig.gen., and commanded the army of the west, which conquered New Mexico. He was appointed governor of California in 1847, and in the following year received the brevet of maj.gen. He wrote a *Manual for the Exercise and Maneuvering of U. S. Dragoons*, and other works.

KEAR'SARGE, Mount, an elevation in Carroll co., N. H., belonging to the White mountain group; lat. 44° 6′ 20″ n., lon. 71° 5′ 40″ w.; height 3,250 feet. It was for this mountain that the vessel was named which sank the confederate cruiser *Alabama* in 1864. Another mountain, situated in Merrimack co., N. H., has sometimes been mistakenly called by the same name. The latter was formerly known as *Kyar-Sarga*, which was easily changed to Kearsarge. Its Indian name was Cowissewaschook, and it is 2,950 ft. high.

KEATS, John, an English poet, was b. in London in 1796. He was educated at Enfield, and was afterwards apprenticed to a surgeon. Certain of his sonnets were published in the *Examiner*, then edited by Mr. Leigh Hunt, and received his cordial admiration. He published in 1817 his first volume of poems; and in the following year *Endymion* appeared, dedicated to the memory of Thomas Chatterton. This poem was severely handled in the *Quarterly Review* and in *Blackwood*. He published a third volume of poems, containing *Lamia*, *Isabella*, *Eve of St. Agnes*, the fragment of *Hyperion*, and the odes to the *Nightingale* and the *Grecian Urn*. His health was at this time delicate; and shortly after the publication of his book he went to Italy; and died at Rome, Feb. 23, 1821, his last moments soothed by the tender care of Mr. Severn the artist. His grave is close to Shelley's. There is an admirable memoir of Keats by Moncton Milnes (lord Houghton), who has also given us, 1877, the first complete edition of Keats's poems.

Keats's early poems are disfigured by conceits and affectations, but his latest place him amongst the masters of his art. The *Eve of St. Agnes* is as melodious as any portion of the *Faery Queen; Hyperion* has something of the organ-tone of Milton. His influence is strikingly apparent in the subsequent efforts of the English muse—Browning has his color without his melody, Tennyson has his color and his melody both.

KEAYNE, Capt. Robert, supposed to have been b. in London in 1595. He was a merchant tailor, and, possessing wealth, aided the Plymouth colony as early as 1624. In 1635 he became one of the founders of the colony of Massachusetts Bay, settling at Boston, where in 1638 he organized the "ancient and honorable artillery company," which has been perpetuated to the present time. He represented the city in the general court, 1638–49. He was a liberal contributor to Harvard college, and a legacy left by him was the foundation of the free school, now known as the Boston Latin school. His wife was a daughter of sir John Mansfield, and he was therefore brother-in-law of rev. John Wilson, first minister of Boston. He was a man of many eccentricities, some of which found expression in his will, which is probably the longest, perhaps the oddest, ever made in this country.

KEBLAH, an Arabic word, signifying literally "the south," or "anything opposite." It is employed to designate the point of adoration, or that point of the compass towards which worshipers face when in prayer. Thus the Persian fire-worshipers turn to the east, as the place of the rising sun; the Jews face in the direction of Jerusalem, the Mohammedan to Mecca, and as the first Christians faced to the east, the communion table in some Christian sects is usually placed at the east end of religious structures. Persons are also buried with their feet to the east, because thither they "look for the day-spring and resurrection"; this custom is thought to have originated among the ancient Greeks. In free-masonry the custom of turning to the east is recognized in the ceremonial.

KEBLE, John, son of the rev. John Keble of Coln St. Alwynds, Gloucestershire, and Sarah Maule, a lady of Scotch descent, was b. at Fairford, 3 m. from his father's living, April 25, 1792. The elder Keble, a divine of the school of Ken, educated his son at home, and with such success that at the early age of 15 he was elected scholar of Corpus Christi, Oxford, then a small college composed wholly of members on the foundation, but numbering among its scholars such names as Coleridge (sir J. T.) and Arnold of Rugby. In 1810 Keble took a first-class in classics and mathematics; and in the next year was elected to a fellowship at Oriel, one of the highest honors in the university. In 1812 he gained both the Latin and English prize essays, was ordained deacon in 1815, and priest in 1816. Even then he had chosen his career. Neither the prospect of

emolument at Oxford, nor the intellectual attractions of the Oriel common-room, of which Whately and Copleston were then members, and to which Arnold, Pusey, and Newman were soon afterwards added, could charm him from his first love, the life of an English parish priest. For a while he remained at Oxford as tutor and examiner, but soon took active clerical duty, principally assisting his father. In June, 1827, in deference to the wishes of his friends, he published *The Christian Year; or, Thoughts in Verse for the Sundays and Holidays throughout the Year*, portions of which had been written as early as 1819. The success of the small volume, and its influence on religious thought in England, can hardly be overrated. The number of editions sold (some of 3,000 copies) is marvelous. Although of unequal merit, many of the pieces being evidently written to complete the original plan, it is a work of genuine inspiration, combining with rare depth and fullness of religious feeling, the tenderest sensibility and a poet's appreciation of nature in her more sympathetic and human aspects. In 1831 Keble succeeded Milman as professor of poetry. His official prelections are ingenious in theory, and composed in elegant Latin prose. But the time had come when he must quit the pleasant paths of poesy for the tumult of theological controversy. It was a period of peril for the English church. Within was apathy and want of spiritual life, save only in the extreme evangelicals, from whose defects of learning and taste Oxford naturally revolted. Without, a reformed parliament had already suppressed three Irish bishoprics, and seemed not unreluctant to lay hands upon the church at home. In his sermon on national apostasy (1833) Keble gave the signal for the tractarian movement—a movement remarkable for the learning and ascetic saintliness of its promoters, and whose principles were deep submission to authority, implicit reverence for Catholic tradition, with firm belief in the divine prerogatives of the priesthood, the real nature of the sacraments, and the danger of independent speculation. Early in 1835 old Mr. Keble died, and at the close of the same year the poet married Miss Charlotte Clark, the daughter of an old friend of his father, and quitted Fairford for Hursley, a living in the gift of sir W. Heathcote, M.P. When Newman seceded to Rome, Keble, less logical perhaps, but with a truer instinct of fidelity to the Anglican church, remained firm, and amidst the general dismay exerted himself to the utmost to confirm those who wavered. From this period till his death his influence, though comparatively unseen, was not less felt. His *Lyra Innocentium*, in 1846, never equaled *The Christian Year*. Keble died at Bournemouth Mar. 29, 1866, at the age of 74. Keble was the author of *a Life of Bishop Wilson;* an edition of Hooker; and several lesser contributions to periodical literature. A permanent memorial of Keble exists in Keble college, Oxford, incorporated June 6, 1870. Intended as a memorial to Keble, it provides an academical education, economical living, with Christian training in accordance with the principles of the church of England. See *Memoir* of Keble by sir J. T. Coleridge. 1869.

KECSKEMET', a t. of Hungary, 54 m. s.e. of Pesth, is a station on the railway between that city and Temesvar. It is said to be the greatest market-town in the country, and with its extensive suburbs, its streets, straggling and low buildings, may be considered as a type of the Magyar town. Agriculture and vine-growing are carried on; but the inhabitants are chiefly employed in rearing cattle, sheep, horses, and swine. Five markets are held here annually; the cattle-market is the most important in Hungary. Pop. '80, 44,887.

KEDARNATH, a famous resort of Hindu pilgrims in northern Hindustan, in the mountains of Gurwhal. The place is accessible only by steep roads, which for half the year are blocked up with snow. One of the peculiar ceremonies observed here is that of the widows shaving their heads after bathing and purifying themselves in the Ganges, which is here a narrow stream.

KEDGE, or KEDGE-ANCHOR, a small anchor used in large ships to keep the bow of the vessel clear of the bower, or principal anchor. Another use of the kedge is to move the ship from mooring to mooring in the harbor; for this purpose it is conveyed to a distance in a boat, then dropped, and the vessel hauled up towards it by a cable attached.

KED'JERI, a seaport of Bengal, stands on the w. side of the most westerly channel of the Hoogly, once the principal approach to Calcutta from the sea. Between it and the metropolis there is a telegraphic line of about 40 m. in length, being the first work of the kind in India.

KEE'CHIES, the remnant of an Indian tribe, formerly resident in Texas, but since 1859 removed to the Washita river in Indian territory, after temporary subjection to the customary disturbed relations with frontier settlers, and with the U. S. government. Analogies of language indicate that this tribe is closely allied to the Pawnees.

KEEL is the backbone, as it were, of a ship, running longitudinally along the middle of the bottom. It consists of massive timbers clinched together lengthwise. From it spring, on either side, the ribs on which the ship's sides are laid, and from it, at the bow and stern respectively, the stem and the stern post. As the decks bear by transverse beams upon the ribs, it follows that the whole weight of the ship and its contents exercise an oblique lateral pressure on each side of the keel. It is usually protected by strong iron binding, so that the keel may be as little injured as possible, in the event of

the ship taking the ground. In iron vessels of modern construction the keel is frequently dispensed with, corresponding strength being obtained by internal tie-beams, etc.; but the absence of the keel takes away one preventive to rolling from side to side. To be "on an even keel," is to have the keel parallel to the surface of the water, i.e., the bow and stern equally deep.

KEELAGE, a toll or custom payable by ships for resting in a port or harbor.

KEELHAULING, a punishment in use, or formerly in use, for sailors in the Dutch navy. The culprit was suspended from one yard-arm, and attached to him was a rope passing beneath the keel to the yard-arm on the opposite side of the ship. The punishment consisted in dropping the prisoner suddenly into the water, and hauling him beneath the keel up to the yard-arm on the other side.

KEEL'ING, or Co'cos, ISLANDS, a group comprising Horsburg, Keeling, and other smaller islands, in lat. 12° 5′ s., long. 96° 53′ e., in the Indian ocean. They belong to Great Britain; and a few English people inhabit them, but the chief population are Malays. The cocoa-palm flourishes here, with other tropical vegetation.

KEEL'SON, in a ship, passes inside the vessel from stem to stern, as the keel does outside. The floor-timbers are passed below it, each being bolted through the keel, and alternate ones through the keelson. Like the keel, the keelson is composed of several massive timbers scarfed longitudinally together.

KEELY MOTOR. See page 889.

KEENE, a city of New Hampshire, and the capital of Cheshire co., which forms the s.w. corner of the state; situated upon the left bank of the Ashuelot river at the junction of the Cheshire and Ashuelot railroads; 43 m. w.s.w. from Concord, the capital of the state; pop. '80, 6,786. It is surrounded by lofty hills, and the Monadnock mountain is only 10 m. distant. The place was settled in 1735, when it was called Upper Ashuelot. It received its present name in 1753, and was incorporated as a city in 1874. The streets radiate from a public square, and many of them are lined with shade trees. It is the center of a large trade, and has some fine buildings. It has 8 churches, graded public schools, a high school, a public library, 4 national banks, and 4 weekly newspapers. There are also manufactories of carriages, woolen goods, earthenware, brick, furniture, etc., and railroad repair shops employing a large number of workmen.

KEENE, Laura, 1820–73; b. England; a professional actress on the London boards, where she achieved some reputation in comedy and the drama, particularly in the character of "Pauline" in Bulwer's *Lady of Lyons.* She left England in 1852, and visited the United States and Australia, making her first appearance in New York, Sept. 20, 1852, and afterwards performing in San Francisco. In 1855 she established herself in New York in the management of the Varieties' theater, and at a later period directed the establishment to which she gave her own name. Here, in 1858, she produced *Our American Cousin* for the first time, with Joseph Jefferson as "Asa Trenchard," and E. A. Sothern in the small character-part of "Lord Dundreary," which he afterwards elaborated to be the feature of the piece. In 1860 Miss Keene formed a traveling company, which she continued to direct during the next ten years. Returning to New York in 1870, she continued to appear until a brief period before her death. Miss Keene was a capable and popular actress, with marked personality and certain mannerisms, which were not, however, unpleasant. She excelled in melodramatic parts.

KEENER, John Christian, d.d. See page 889.

KEEP, in mediæval fortification, was the central and principal tower or building of a castle, and that to which the garrison retired, as a last resort, when the outer ramparts had fallen. See Castle. A fine specimen of the ancient keep is still extant amid the ruins of Rochester castle.

KEEPER of the GREAT SEAL, a judicial officer, whose duties are now generally merged in those of the lord chancellor.

KEEPING the PEACE. When a person has been assaulted, or is apprehensive of an assault, he may apply to justices to order the assaulting or threatening party with sureties to keep the peace. This is done by the justice ordering the party to enter into recognizances under articles of the peace (q.v.), called in Scotland a bond in pursuance of letters of lawburrows (q.v.).

KEEWATIN, properly Keewaydin, an Indian name for the n.w. wind, but now adopted for the territory lying to the n. and e. of Manitoba, and extending to Ontario. Keewatin comprehends an area of 395,000 sq.m.; by the act of Oct. 7, 1876, this division of land was detached from the n.w. territories, and erected into the "district of Keewatin." That portion of it bordering on lake Superior exhibits some splendid scenery, cliffs rising to the height of hundreds of feet—in the case of Thunder cape, to the height of 1350—and in every variety of form. The country in the interior is rugged, but large portions are covered with fine timber. Rocky ledges, swamps, lakelets, patches of good arable land, larger areas of good or sandy soil, lakes and rivers teeming with fish, with many a fall, are its leading features. Very rich mines of silver have been discovered, and are being worked, and in their neighborhood villages have sprung up, particularly Silver Islet and Prince Arthur's Landing on Thunder bay, and Fort William on the Kaministiquia river, which has been selected as the eastern terminus of the Canada

Pacific railway. That portion of it to the w. of lake Winnipeg is, however, low and fertile, and is being settled principally by immigrants from Iceland.

KEIFER, Joseph Warren. See page 889.

KEFF, or El-Keff, a strongly fortified t. of South Africa, near the Algerian frontier; pop. 6,000. Its situation is beautiful.

KEIGH'LEY, a market and manufacturing t. in the West Riding of Yorkshire, is situated on the river Aire, 9 m. n.w. of Bradford. It has a free grammar school, with an endowment of £240 per annum. A mechanics' institution opened in 1870 contains a club of 1000 members, and schools and classes with 600 students. Many new churches, factories, and other buildings have been erected. The manufactures of worsted, machines, and paper are important. Pop. '81, 25,245.

KEIGHTLEY, Thomas, 1789–1872; graduated at Trinity college, Dublin, and passed his life in study, and in the compilation of text-books in history and mythology. He wrote *Mythology of Ancient Greece and Italy; Outlines of History; History of India*, etc.

KEIM, Theodor, D.D.; b. at Stuttgart, Würtemburg, 1825; was in the university of Tübingen from 1843–48, where, under the guidance of Baur, he devoted himself to philosophy, ecclesiastical history, and biblical criticism; was tutor at Bonn in 1850, and at Tübingen from 1851–55; was ordained deacon in 1857, and archdeacon in 1859, and in 1860 became professor of theology at the university of Zurich. He was prominent among the liberal Protestant theologians of Germany, and published several volumes upon the history of the reformation in different parts of that country. Among his works are *The Historical Christ* and *The History of Jesus of Nazareth*. He d. 1878.

KEI RIVER, Great. This important stream divides British Kaffraria on the s.w. from Kaffraria proper, and with its branches, the Black or White Kei, the Indwe and Tsomo, all rising in the Stormbergen, drains a basin of about 7,000 sq. miles. It is very rugged in its lower course, and its mouth, like all other Kaffrarian rivers, is hopelessly barred.

KEISKAM'MA. This river forms the boundary between Cape Colony and that of British Kaffraria. It is a purely Hottentot name, signifying "clear water." It rises in the Amatola, and with its branches, the Chumie and Gaga, waters a very fertile tract of country, formerly the head-quarters of the Amaxosa Kaffers, now densely settled with industrious German and English settlers.

KEITH, a co. in s.w. Nebraska, adjoining Colorado, intersected by the two branches of the Platte river, and traversed by the Union Pacific railroad; 2,016 sq.m.; pop. '80, 194.

KEITH, The Family of. The origin of this, as of most other Scottish historical houses, is unascertained, It first appears in record during the latter half of the 12th c., and undoubtedly took its name from the lands of Keith in East Lothian, to which the office of the king's marischal was attached. The family enters the page of history in the beginning of the 14th century. In 1305 sir Robert of Keith, hereditary marischal of Scotland, is found high in the confidence of king Edward I. of England, holding under him the office of joint justiciar of Scotland from the Forth to the Mounth, and sitting in the English council at Westminster as one of the representatives of Scotland. He kept his allegiance to England for some years after Bruce was crowned king of the Scots, but joined that prince before Bannockburn, where he commanded the cavalry, and by a well-timed charge upon the English archers contributed not a little to the fortune of the day. His services were rewarded by a large grant of land in Aberdeenshire; and the possessions of the family were still further increased, before the close of the century, by a marriage with one of the co-heiresses of sir Alexander Fraser, chamberlain of Scotland, Bruce's brother-in-law. Through this alliance the Keiths acquired great estates in Kincardineshire, and having added to them the remarkable sea-girt rock of Dunnottar, they built or restored a castle upon it, which was henceforth their chief seat.

Earls Marischal.—About 1458 the family was ennobled in the person of sir William Keith, who was created earl marischal and lord Keith. His house reached its highest pitch of power in the person of his great-great-grandson, the fourth earl, nicknamed, from the seclusion in which he lived at Dunnottar, "William who kept the tower." By marriage with his kinswoman, the co-heiress of Inverugie, he nearly doubled the family domains, which now included lands in seven shires, Haddington, Linlithgow, Kincardine, Aberdeen, Banff, Elgin, and Caithness. He was reputed the wealthiest peer in Scotland, having a rental of 270,000 marks a year, and being able, it was boasted, to travel from the Tweed to the Pentland Firth, eating every meal and sleeping every night on his own lands. These vast possessions passed to his grandson, George, the fifth earl, who, in 1593, founded the Marischal college and university of Aberdeen. Its walls were inscribed with the words: "Thay haif said: quhat say thay: lat thame say;" in allusion, it would seem, to the popular reproach which the earl had brought upon himself by adding the lands of the ancient abbey of Deer (q.v.) to his already overgrown estates. The story ran that his wife earnestly entreated him to forego the spoil. "But fourteen score chalders of meal and bear was a sore temptation," says Patrick Gordon of Cluny, and the earl was deaf to her entreaties. Hereupon, it is said, she dreamed a dream, which was thought to portend the downfall of the house of Keith.

She saw the monks of Deer set themselves to work to hew down the crag of Dunnottar with their pen-knives, and while she was laughing them to scorn, "behold! the whole crag, with all its strong and stately buildings, was undermined and fallen in the sea." This was written before 1660. Within little more than half a century Dunnottar was in ruins, and its lord a landless exile. At the age of 22 George, the tenth and last earl marischal, took part, with his younger brother James, in the rising of 1715. He was attainted, and his estates (yielding £1676 a year) were forfeited, but he himself escaped abroad, where he rose to distinction in the Prussian service. His communication to the British government of a political secret which he learned when Prussian ambassador at Madrid procured his pardon in 1759. A year or two afterwards he revisited Scotland, and bought back part of the family estates, but refused the proffered restoration of the family titles. He speedily returned to Prussia, and died there in 1778 at the age of 86. His brother, who had risen in the Prussian service to the rank of field-marshal, fell at Hochkirch in 1758. See KEITH, MARSHAL.

Lords Keith.—Neither having any issue, the direct male line of the house came to an end. His sister, lady Mary, by her marriage, in 1711, with John, sixth earl of Wigton, had a daughter, lady Clementina, who married Charles, tenth lord Elphinstone, by whom, besides other children, she had sir George Keith Elphinstone, who, in 1797, was created lord Keith of Stonehaven marischal in the Irish peerage, and in 1803, lord Keith of Banheath in the peerage of the United Kingdom.

Earls of Kintore.—Sir John Keith, third son of the sixth earl marischal, was, for his services in saving the Scottish regalia during the commonwealth, raised to the peerage by the titles of earl of Kintore and lord Keith of Inverury and Keith hall. On the death of his grandson, the fourth earl, in 1761, the estates devolved on the last earl marischal; and on his death in 1778 the estates and titles passed to Alexander, sixth lord Falconer of Halkertoun, the grandson of the eldest daughter of the second earl, in whose family they remain.

KEITH, ALEXANDER, 1791–1880; b. Keith Hall, Aberdeenshire; educated in Scotland; a minister of the established church until the disruption in 1843, when he joined the free church. His principal work, *Evidences of the Truth of the Christian Religion Derived from the Literal Fulfillments of Prophecy*, is a standard work, has passed through 37 editions, and been translated into several languages. It was followed by *The Signs of the Times; The Land of Israel; Demonstration of the Truth of the Christian Religion.* He was an enthusiastic student of prophecy. With Dr. Black and others, as a deputation from the church of Scotland, he visited Palestine to make researches respecting the condition of the Jews, and published a *Narrative of the Mission to the Jews.* This has been illustrated by his son, Dr. G. S. Keith of Edinburgh, who accompanied him in his tour.

KEITH, GEORGE, about 1640–1715; b. Aberdeen, Scotland; educated for the Presbyterian ministry at the university there. He adopted Quaker principles about 1664, and was subsequently associated with both Robert Barclay and George Fox in public discussions for the defense of the sect. In 1682 he taught a Quaker school, and in 1684 was imprisoned in Newgate for preaching without license and for refusing to take an oath. Not long after this he came to America and became surveyor-general of East Jersey. Subsequently, for a short time, he was master of a Quaker school in Philadelphia. In 1690 he visited New England as a Quaker preacher, where he fell into religious disputation with Cotton and Increase Mather. On returning to Philadelphia he became involved in difficulties with his own sect upon doctrinal points, and was denounced as an apostate by William Penn. After this he organized a new sect of Christian (or Baptist) Quakers, contemptuously called by his opponents "Keithians." His next step was to enter the church of England, by which he was appointed a missionary to the members of the sect which he had founded and to the Quakers generally. From 1702 to 1705 he was engaged in this employment, traveling through the northern colonies in America, and preaching wherever he could gain a hearing. Hundreds of Quakers are said to have been baptized by him as a sign that they had renounced their former faith. He returned to England in 1706, and was appointed rector of Edburton in Sussex, where he died. He was a man of wide learning, and wrote extensively, first in favor of, then in opposition to, Quakerism, and published two volumes, giving an account of his travels and experiences in America. He was also the author of *A New Theory of Longitude* (1709).

KEITH, GEORGE KEITH-ELPHINSTONE, Viscount, 1746–1823; b. at Elphinstone, Scotland. He entered the navy in his boyhood, and commanded the frigate *Perseus* at the battle of Bunker Hill in 1775, and in the action at fort Mifflin on the Delaware in 1777. He served in the Mediterranean squadron, under lord Hood, at Toulon, in 1793; was afterwards made an admiral, and in 1795 sent to operate against the Dutch colonies. In this expedition he was very successful, taking possession of Cape Colony, Ceylon, Cochin, Malacca, and the Molucca islands, and finally in Aug., 1796, capturing the Dutch squadron in w. Africa. For these exploits he was elevated to the Irish peerage as baron Keith of Stonehaven marischal. In 1800 he co-operated with the Austrians in the capture of Genoa. He also co-operated with Abercrombie in the Egyptian expedition, and in 1815 commanded the channel fleet which prevented the escape of Napoleon I., and led to his subsequent surrender to capt. Maitland of the *Bellerophon.* In 1814 he

was created viscount Keith of the peerage of the United Kingdom. He died at Perthshire, Scotland.

KEITH, James, best known as Marshal Keith, second son of William, ninth ear marischal of Scotland, and lady Mary Drummond, daughter of the earl of Perth, was b. at the castle of Inverugie, in Aberdeenshire, on June 14, 1696. He and his elder brother, George, earl marischal, had for their preceptor their kinsman, Robert Keith, afterwards a bishop in the Scottish Episcopal church, and author of two valuable historical works. The brothers took part, on the side of the house of Stewart, in the insurrection of 1715, and after its suppression were attainted (see Keith, The Family of). Having effected his escape, Keith remained in France for some years, improving his knowledge of the military profession, and waiting for an opportunity of obtaining service. In 1719, along with his brother and other Scottish noblemen, he sailed on board the fleet which was fitted out by cardinal Alberoni and the Spanish court for the invasion of Scotland. The Jacobites were defeated at Glenshiel by the royal army, under gen. Wightman, and obliged to retreat. The Spanish auxiliaries were ready to renew the battle, but the Highlanders dispersed, and Keith, after lurking for some time among the mountains, got across the country to Peterhead, and again escaped to the continent. He continued in the Spanish service, but all his expectations of promotion were disappointed, in consequence of his firm attachment to the Protestant Episcopal church. In 1727 he made an application for the colonelcy of an Irish regiment, and received, as he himself tells us, the following answer from the king of Spain, "that how soon he knew I was Roman Catholic. I should not only have what I asked, but that he would take care of my fortune." In consequence of this he applied for a recommendation to the Russian government, which was immediately given, and he received from the czar Peter II. a commission as maj.gen. He distinguished himself in the wars with the Turks and Swedes, particularly at the siege of Oczakoff, and the reduction of the islands of Aland; but finding the Russian service in various respects disagreeable, he entered that of Prussia in 1747. King Frederick knew his merits, and gave him the rank of field-marshal. From this time his name is associated with that of the king of Prussia, who relied as much on the military genius of Keith as he did on the diplomatic ability of his brother, the earl marischal. Keith's talents became still more conspicuous upon the breaking out of the seven years' war. He shared the doubtful fortunes of the king before Prague, and was present at the great victory of Rossbach, and at the retreat from Olmütz. His last battle was not far distant. The Austrians under Daun, and the Prussians under their king, met at Hochkirch on Oct. 14, 1758, Keith commanding the right wing. The Prussian army was beaten, and Keith, surrounded and overwhelmed by numbers while endeavoring to force his way at the bayonet-point, was shot through the heart. His body was recognized by count Lacy, formerly his own scholar in the art of war, and was buried at Hochkirch. Keith wrote a brief but interesting fragment of a memoir of his own life, commencing with the year 1714 and ending in 1734, which was printed in 1843 by the Spalding club. For his military career after entering the Prussian service, reference may be made to Mr. Carlyle's *History of Frederick the Great.*

KEITH, Sir William, about 1680–1749; b. in Scotland. After acting for a time as surveyor-general of customs in the southern colonies of America, he was governor of Pennsylvania, 1717–26. His reputation is that of a man intriguing, treacherous, and vain. He wrote a *History of Virginia,* published in 1738, and was the author of a volume of miscellaneous papers that appeared just before his death, which took place in London.

KELAT', or The Fortress, a natural stronghold in Persia. A tract of country 50 or 60 m. in length and 12 or 15 in breadth; is so surrounded by precipitous mountains as to be nearly inaccessible. Wherever the difficulties of ascent or descent on either side of this natural wall were not insurmountable they have been made so by the skill of man. There is also an outer wall or low range of hills inclosing a hollow corresponding to the moat of a fortress. The only two passes into this remarkable region, called the gates of the fortress, have been built up and strongly fortified. It is held by 3,000 armed men. Part of the valley is under cultivation, and the population amounts to nearly 10,000.

KELAT', the capital of Beloochistan, stands at an elevation of more than 7,000 ft., in lat. 28° 52′ n., and long. 66° 33′ east. Kelat contains about 12,000 inhabitants. Seated on the summit of a hill, Kelat is a place of great military importance. It was occupied by England during the Afghan war; and in 1877 a treaty was concluded with the khan, by which a British agent, with military escort, becomes resident at the court of Kelat.

KELLERMANN, François Christophe, duke of Valmy; b. May 28, 1735, at Wolfsbuchweiler, in Alsace; entered the French army, and had risen to the rank of a maréchal-de-camp before the revolution broke out. He warmly espoused its cause, and contributed much to its progress in Alsace. In 1792 he received the command of the army of the center on the Moselle, repelled the duke of Brunswick, and delivered France by the famous cannonade of Valmy. Yet, on allegation of treason against the republic,

he was imprisoned for ten months, and only liberated on the fall of Robespierre. He afterwards rendered important services in Italy, and on the erection of the empire he was made a marshal and a duke. In the campaigns of 1809 and 1812 he commanded the reserves on the Rhine. At the restoration, he attached himself to the Bourbons. He was moderate and constitutional in his views. He died Sept. 12, 1820.

KELLERMANN, François Étienne, 1770–1835; duke of Valmy. A French gen., son of gen. François Christophe, who served the French republic of 1792-93 with brilliant success, and inheritor of the title conferred by Napoleon on that general. The son was attached to the army of the first consul, distinguished himself by dash and bravery in many battles under Napoleon I., and claimed the credit of the victory of Marengo by reason of the brilliant cavalry charge he led changing the face of the battle. On the first fall of Napoleon he promptly accepted office under Louis XVIII. On Napoleon's return in 1815 he commanded royal troops to oppose him, and ended by humbly offering his services to the emperor. After the battle of Waterloo, in which he distinguished himself by a brilliant and successful cavalry charge, he failed to receive position again from Louis XVIII., but proved a pliant courtier to each succeeding head of the French government.

KELLEY, William Darrah, b. Philadelphia, 1814; orphaned young, supported and educated by his own work and will; first a printer, afterwards learned the trade of jeweler, and while working at his trade studied law; was admitted to the bar in Philadelphia in 1841. From 1846 to 1856 was judge of the court of common pleas of Philadelphia. In 1856, on the repeal of the Missouri compromise, he left the democratic party, became the republican candidate for congress, and was defeated. In 1860 he was delegate to the republican convention at Chicago which nominated Lincoln; and the same autumn was elected representative to the 37th congress from Philadelphia, and has been re-elected to the present time (1880). Now the oldest member in consecutive service, he is styled the father of the house. In the first terms of his congressional service Mr. Kelley was recognized as an earnest and eloquent supporter of all measures to circumscribe slavery, to carry on the war for the union, and at its close to assert and defend the equal rights of all races in the privileges of citizenship. Later he became conspicuous for his energetic defense of a tariff for the protection of the iron interests of Pennsylvania, and of protection to all American manufactures. For the last three terms of his service he has been conspicuous by his able championship of opinions on the subject of money, and financial legislation, differing from those usual in both political parties. He has been erroneously classed with the advocates of unlimited issues of government notes for money. Nothing in his public life warrants this. But he is an opponent of the monopoly in the issue of money granted to bank corporations, and favors the issue of government notes, payable in gold or silver on demand, in lieu of private corporation bank-notes. He was the great supporter of a bill known as the 3.65 interconvertible bond scheme, introduced in congress in Jan., 1874, which, though ridiculed and violently opposed by both parties when presented, has since been reached in gradual approaches by the secretary of the treasury. Mr. Kelley's views have changed since he began to speak on financial questions, as the result of careful study, which has made him a disciple of Henry C. Carey of Philadelphia. He has been peculiarly comprehensive in his observation of the practical effects of financial legislation on the active industries of the country. At first he saw no great evil lurking in the legislation demonetizing silver; but, when he had studied its effects, he advocated remonetization in speeches so powerful in facts and reasonings, that, before the session closed, remonetization was carried by a majority of five to one in the house of representatives. He was distinguished for the earnestness of his protests against the violent efforts to contract the national "greenback" circulation after all the business transactions of the country for ten years had become adjusted to its volume; and it is claimed that his pictures of the inevitable effect of such interference with business interests were verified by the misfortunes that came upon a large part of the people when their debts were increased and the value of their property diminished by the same act of legislation. The subject of a single or dual coin standard of value having grown into a world-wide study, Mr. Kelley is now prominent in its discussion, and in the effort to conserve the joint use of silver and gold as heretofore. In the summer of 1879 he visited Europe and conferred with Bismarck and with great writers on this subject, in both Germany and France, writing notes on his conferences in letters to the Philadelphia *Times*, since published in a pamphlet entitled *Letters from Europe.*

KELLEY'S ISLAND, one of a group of islands at the w. end of lake Erie, a township of Erie co., Ohio. The group is noted for producing the best grapes for wine grown in the United States e. of the Rocky mountains. The southerly side of the island is only 3 m. from the mainland and 12 m. from Sandusky. Area about 3,000 acres; pop. 80, 888. First surveyed as island No. 6; afterwards known as Cunningham's island; in 1840, by act of the Ohio legislature, it was made the township of Kelley's Island, having been purchased by the brothers Datus and Irad Kelley in 1833–34. The surface is generally flat, from 6 to 80 ft. above the level of the lake. Devonian limestone forms the basis of the soil and is generally quite near the surface. The island was originally heavily timbered, mostly with deciduous trees, with a fringe of fine red cedars upon its shores. Nearly

all the former have long since been sold in cord wood to the steamboats of the lakes, which exhausted the supply between 1840 and 1860; now the inhabitants import their fuel. The red cedar was speedily exhausted by its use for posts, and few of the trees, which once formed a picturesque border for the island, are left.

The leading industry is grape-growing and wine-making. The first vines were planted in 1842; the first wine made in 1850. The superior quality of the grapes and wine soon attracted attention. Nearly 1000 acres are now in vineyards, three-fourths of which are of the Catawba grape, and the remainder Concord, Delaware, Inez, Virginia, Norton's seedling, and experimental varieties: average product per acre, 1½ tons. The value of grapes and wines exported amounts to $150,000 to $200,000 per annum. Between 1860 and 1870 the small vine-growers built wine cellars of limited capacity, for the construction of which the fissures or caves in the limestone offered good sites. These, previous to 1871, were of capacity ranging from 5,000 to 80,000 gallons each. During that year the Kelley's Island wine company enlarged their cellars to the storage capacity of 400,000 gallons, with steam-engine for elevating, grinding, and pressing the grapes. The capital of the company in 1880 is $200,000. Price of vineyard-land, $600 per acre.

The limestone of the island is exported largely for making quick-lime, rubber work, and block-stone for building, and flues for furnaces; its easy quarrying and nearness to the docks giving it a market in all the cities on the shores of the lakes. About 200,000 tons are shipped annually.

During the summer of 1880 there were 390 entrances and clearances of vessels, besides three daily steamboat arrivals and departures. In summer the island has a daily mail, and telegraphic connection via Sandusky. It has good schools, 4 churches, and 2 hotels.

Aboriginal antiquities of peculiar interest were discovered in 1834 by Charles Olmstead of Connecticut. These consist of mounds and earthworks, some of which inclose from 3 to 5 acres, in which abounded broken pottery, pipes, hatchets, arrow heads, etc. But more important are the sculptured rocks on the n. side of the island, where the hieroglyphics on the surfaces of rocks are of so marked a character that gen. M. C. Meigs called the attention of the government to them. They were made the subject of a special report by col. Eastman in 1851, with accompanying drawings. One, known as inscription rock, is engraved and described in Schoolcraft's *Indian Antiquities*. He says of it: "It is by far the most extensive and well sculptured and best preserved inscription of the antiquarian period ever found in America."

KELLOGG, Clara Louise, b. Sumterville, S. C., 1842, but removed with her parents to New Haven, Conn., and afterwards to New York, where she prosecuted her musical education under Albites and other excellent teachers. She made her first appearance in Italian opera in the season of 1861–62, playing "Gilda" in *Rigoletto* with remarkable success for a *débutante*. Three years later she appeared in "Marguerite" in Gounod's *Faust*, and established her reputation as a leading vocalist. In 1867 she made her appearance at her majesty's theater, London, under the management of col. Mapleson, and produced a profound impression. Indeed, it is doubtful if Miss Kellogg was ever so highly esteemed in her own country as in England. She returned to America in 1868, and during the next three years traveled through the states, appearing in the cities and large towns, meeting with the most cordial reception at the hands of critical audiences. Returning to London in 1872, she sang with Nilsson at Drury Lane theater, and with even more pronounced success than before, singing before the queen at Buckingham palace, and being generally complimented in the most flattering terms by the London critics and connoisseurs. From 1874 Miss Kellogg devoted herself to popularizing English opera in America, and with marked success. She organized a strong company, which she rehearsed in a comprehensive repertoire, and traveled through the country, performing in the leading theaters. She first introduced to American audiences the operas of *The Talisman* and the *Lily of Killarney*. Miss Kellogg, while not to be compared with the leading singers of her time—Nilsson, Lucca, Albani, and Patti—is a vocalist of decided natural gifts and acquired excellence. Possessing a voice of great power and remarkable compass, her execution is phenomenal in brilliancy and exactness. Miss Kellogg is, however, unsympathetic, and her voice exhibits a metallic quality which is not grateful to the ear. Her singing appeals rather to the intellect than to the heart, while she has few of the qualities which go to the composition of a great actress.

KELLOGG, George, 1812–80; father of Clara Louise; b. Conn.; graduated at the Wesleyan university in 1837; from 1838 to 1841 was principal of an academy at Sumterville, S. C. He is distinguished mainly as an inventor and manufacturer, having invented a machine for making jack-chains, a dovetailing machine, a type-distributing machine, improved surgical instruments, etc.

KELLOGG, William Pitt, b. Vermont, 1831; graduated at Norwich university, and in 1848, at the age of 18, removed to Peoria, Ill., where he studied law, and was entered at the Fulton co. bar in 1853. He became prominent as delegate to republican conventions, and was chosen presidential elector in 1856 and 1860. In 1861 he held the office of chief-justice of Nebraska. In the war of the rebellion he commanded the

7th Illinois cavalry; was promoted to the rank of brig.gen. for his services in south Missouri, and in the Corinth campaign, in which he eommanded gen. Granger's cavalry brigade until the evacuation of Corinth. He left the army on aecount of ill-health, and was appointed collector of the port of New Orleans in April, 1865. In 1868 he was elected U. S. senator from Louisiana; was plaeed on the eommittees of commeree and private land elaims, and resigned in 1872. In 1873 he was eleeted governor of Louisiana, after a bitter contest between the political parties of the state, whieh compelled the interference of federal military authority, and resulted in a compromise. He held the offiee from 1873 to 1877, and was admitted to a seat in the U. S. senate, Dec. 1, 1877, for a term of six years.

KELLS (originally, *Kenlis*), an aneient corporate t. of the eo. of Meath, Leinster, Ireland, is situated on the Blaekwater, 13 m. n.n.w. of Trim, and has been associated, from a very early period, with the most important events of Irish history, sacred and profane. The town originated in a monastery, which was founded in the middle of the 6th e. by St. Columba; in which monastery the Columban community of Iona found a refuge when that island was devastated by the Norsemen, between 802 and 815. Kells is renowned for an ancient manuscript eopy of the gospels, ealled the book of Kells. It is beautifully executed with colored ornamentation, and is believed to be the work of the 6th or 7th century. It is now preserved in Trinity college, Dublin. Kells was a bishop's see, and before the aet of union, it returned two members to the Irish parliament. Its oldest charter is of 11 and 12 Richard II. This was modified by several succeeding charters, under whieh the munieipal body was maintained until the Irish municipal reform act, which ereated a body of town commissioners. New roads have been formed, and new schools, workhouse, etc., built. Pop. '81, 2,822.

KELLY, James K. See page 890.

*KELLY, John, b. N. Y., 1822; began at a very early age to earn his living, being employed in a rope-maker's shop when only eight years old, and after that with a mason. In 1835 he learned the printer's trade in the office where the N. Y. *Herald* was printed, and attracted the notice of James Gordon Bennett, its founder, who employed him in his offiee. But he returned to the mason's trade as an apprentiee, and, having learned it, in 1842 started in business for himself. Having had but little edueation he devoted his leisure to the study of languages and other subjects, and with great sueeess. His faeility for the rapid acquisition of knowledge was always remarkable, and in later years was commended by prof. Bonamy Price and Horace Greeley as quite an exeeptional characteristie. While still a young man Mr. Kelly interested himself in politics, partieularly of New York city, and in 1849 beeame a member of the Tammany general committee. In 1853 he was eleeted alderman for a term of two years, and the following year to congress, to whieh he was re-eleeted in 1856. While in eongress he gained a reputation by his industry, and by the earnestness with which he supported his convieetions. He was a member of the ways and means committee, and was aetive in pressing the homestead bill, and in opposition to the know-nothing movement. In 1858 he was elected sheriff of New York; held the office until 1861, and was re-eleeted in 1864. At the elose of his term (1869) he visited Europe, remaining abroad two and a half years, and traveling through the Holy Land, Egypt, and Arabia. Mr. Kelly had withdrawn from the Tammany committee in 1864, and during the manipulations of the "Tweed ring" was out of the country. On his return in 1872 he applied himself to the reorganization of the democratic party in the city, and with entire success. In 1876 he was appointed to the important position of comptroller of the city of New York, and so conduеted the vast transactions of the finance department as to gain the respeet and admiration even of his enemies. Bitterly engaged in the loeal politieal faetion-fighting for supremaey in the party, Mr. Kelly was the target for eonstant and severe criticism and animadversion; but his integrity and ability in the administration of his high office were never questioned. Besides his importanee in local politics, in whieh he was recognized as the leader of his party, Mr. Kelly possessed great influence in regard to national affairs, having been a member of nearly every presidential convention after that of 1860. In 1879 he antagonized the regular democratic nominee for governor of the state of New York with sueh foree as to defeat him, running for the office himself on an independent tieket, and polling over 70,000 votes. In Dee., 1880, the term of Mr. Kelly's office as comptroller having expired, he retired from the public serviee.
See *Supp.*, page 890.

KELLY, Robert, ll.d., 1808–56; b. New York; graduated from Columbia college, at the head of his class in 1826. He entered at onee into partnership with his brothers, devoting himself to business until 1837, when he retired to give his attention to educational and other public affairs. He was president of the board of edueation; a member of the state board of regents; a trustee of Madison and New York universities; one of the founders of the free academy (now college) of New York, and also of the university of Rochester. He was for many years president of the boa*d of managers of the New York house of refuge, and active in many other benevolent, financial, and literary associations. He was a scholar of fine attainments, and a master of many languages. At the time of his death he was chamberlain of New York city.

KELLY, William, 1807–72; b. New York; son of Robert, and one of three brothers, John, William, and Robert, who at an early age conducted the extensive business of J. W. Kelly & Co., being distinguished as the "boy merchants." In 1837, John

having died, the firm was dissolved, the remaining partners retiring from business. In 1842 he went to reside at Ellerslie, near Rhinebeck, Dutchess co., New York, 15 m. n. of Poughkeepsie, engaging largely in agricultural pursuits. In 1854 he was elected president of the New York state agricultural society, and president of the overseers of the state agricultural college at Ovid, being one of the founders of that institution. He was for years the president of the trustees of Rochester university; was president of the board of Vassar college, and of several religious and charitable organizations. He was an energetic promoter of all enterprises of a benevolent character, and a clear-headed man of business, whose talent was employed in all departments of mercantile activity, railroads, steamboats, manufactures, and banking. He was a democrat in politics, and served his state in its senate, 1855–56, coming before the people as candidate for governor in 1860.

KE'LOID, or CHELOID, a semi-malignant growth of the skin situated on the trunk and extremities, generally occurring in those who are otherwise in good health. The growths are generally flat and expanded, and of an oval, round, or irregular shape. They sometimes remain stationary for years, but have a tendency to ulcerate and bleed, although they often advance slowly, leaving a red, contracted cicatrix behind them. Negroes are said to be more subject to the disease than whites. Similar growths sometimes follow the imperfect cicatrization of burns or blisters, which are more warty and vascular, and often cause much itching and burning. Cooling applications afford temporary relief, but the proper treatment is excision with the knife, which should be thoroughly done, as the bordering parts appear to have a tendency to malignant degeneration, and do not easily heal, repeated operations often being necessary. See TUMORS.

KELP (Fr. *varec*) is the crude alkaline matter produced by the combustion of sea-weeds, of which the most valued for this purpose are, *fucus vesiculosus*, *F. nodosus*, *F. serratus*, *laminaria digitata*, *L. bulbosa*, *Himanthalia lorea*, and *chorda filum*. These are dried in the sun, and then burned in shallow excavations at a low heat. About 20 or 24 tons of sea-weed yield one ton of kelp, which, as met with in commerce, consists of hard, dark-gray or bluish masses, which have an acrid, caustic taste, and are composed of chloride of sodium, of carbonate of soda (formed by the decomposition of the organic salts of soda), sulphates of soda and potash, chloride of potassium, iodide of potassium or sodium, insoluble salts, and coloring matter. It used to be the great source of soda (the crude carbonate); but as this salt can now be obtained at a lower price and a better quality from the decomposition of sea-salt, it is prepared in far less quantity than formerly. A ton of good kelp will yield about 8 lbs. of iodine (which is solely obtained from this source), large quantities of chloride of potassium, and additionally, "by destructive distillation, a large quantity (from 4 to 10 galls.) of volatile oil, from 4 to 15 galls. of paraffine oil, 3 to 4 galls. of naphtha, and from 1½ to 4 cwt. of sulphate of ammonia."—Ansted's *Channel Islands*, p. 515. Except the iodine and chloride of potassium, none of these substances are obtained under the present treatment.

In Brittany the total annual production of kelp is as much as 24,000 tons, while in all the British islands the total manufacture is only 10,000 tons. Prof. Ansted, in the work already quoted, shows that the manufacture of kelp might be made a source of great wealth to the Channel isles. The Guernsey sea-weed is stated by prof. Graham to be the richest known source of iodine, and the increasing demand for that substance for photographic purposes renders the subject highly important. From the numerical data given in pp 514, 515, of the *Channel Islands*, it appears that they might yield annually about 10,000 tons of kelp, worth about £4 per ton. The British supply would thus be exactly doubled.

Before the remission of the duty on salt and on Spanish barilla, the kelp manufacture was carried on to a very large extent, and the value of many estates in the Scottish Highlands and Hebrides greatly increased in consequence of it. The rent of some farms in the Orkneys rose from £40 to £300 a year. Many thousand tons were made annually on the shores of Great Britain, which sold for £7 to £10 per ton, and employment was given to a great number of people. The regular cultivation of the sea-weed was even proposed, and to some extent carried into effect, by placing large stones within tide-mark upon sandy shores, which were soon covered with it.

KELP, in point of law, if found beyond high-water mark, belongs to the owner of the adjacent land. The right to kelp is often let by the owner separately from the lands in the Highlands of Scotland.

KELSO, a t. in Scotland, finely placed on the n. bank of the Tweed, opposite to the point where that stream receives the waters of the Teviot. The name was anciently written *Kalchu* or *Calchou*, and is supposed to have had its origin in a precipitous bank abounding in gypsum, still called the *Chalkheugh*. The town derived its importance, if not its existence, from a richly endowed abbey of Tironensian monks, planted at Selkirk in the year 1113, by king David I., when prince of Cumbria, and transplanted, after his accession to the Scottish throne in 1124, "to the church of the blessed Virgin Mary, on the bank of the Tweed beside Roxburgh, in the place called Calkou." The abbey was ruined by the English under the earl of Hertford in 1545, and all that now remains of it is part of the abbey church. It is in the later Norman or Romanesque style, and

had a nave of two bays, n. and s. transepts each of two bays, a central tower still 91 ft. high, and a choir of unascertained length. The more modern parts of the town are well built. A handsome bridge, designed by Rennie, connects Kelso with its suburb of Maxwellheugh, and commands a noble view. On the n.w. of the town, in the midst of a beautiful park, is Floors castle, the seat of the duke of Roxburgh; it was built in 1718, from the design of sir John Vanbrugh, and was enlarged and improved by the present duke from the designs of the late Mr. Playfair of Edinburgh. On the opposite bank of the Tweed are the ruins of Roxburgh castle, once the strongest fortress on the eastern border. The town of Roxburgh, which rose under the shelter of its walls to be one of the four chief towns in Scotland, has so completely disappeared, that scarcely a vestige of it remains. Kelso was made a burgh of barony in 1634. It has no manufactures, and little trade, although three newspapers are published in it. Its pop. in 1881 was 4,687.

KELUNG′, a t. and treaty-port of China, in Formosa, on the n. coast. Deposits of coal are found in its vicinity, for supplies of which the place is much visited by steamers. It has a general trade in camphor, coal, and coal-dust.

KEMAON, or KAMAUN. See KUMAON, *ante*.

KEMBLE, ADELAIDE, 1820–79; b. England; the daughter of Charles Kemble, who was the youngest son of Roger Kemble. She was the niece of Mrs. Siddons, the famous actress, and the sister of Mrs. Frances Anne Butler, better known as Fanny Kemble, and began public life with great promise as an operatic singer, making a successful début at Covent Garden, and appearing at several Italian cities, with ever-increasing celebrity. In 1843, after a short, though brilliant professional career, she married Mr. Edward Sartoris, an Italian gentleman of fortune, and retired to his estates in Italy. In 1867 she published *A Week in a French Country House*. In May, 1874, her son, Algernon Charles Sartoris, married the daughter of president Grant.

KEMBLE, CHARLES, brother of John Philip, was b. at Brecknock, in s. Wales, on Nov. 25, 1775. He received his education, like his brother, at Douai, and like him also, he, on his return to England, devoted himself to the stage. In April, 1794, he made his first appearance at Drury Lane in the character of Malcolm. In July, 1806, he married Miss De Camp, a lady who had distinguished herself in the walk of high-comedy. Kemble, on being appointed examiner of plays, relinquished the stage on April 10, 1840. He died on Nov. 12, 1854, having almost completed his 79th year.

KEMBLE, ELIZABETH, 1761–1836; a daughter of Roger Kemble; made her first appearance upon the stage in 1783 at Drury Lane theater, taking the part of "Portia" in the *Merchant of Venice*. She was married in 1785 to Mr. Whitlock, an actor, with whom in 1792 she visited the United States on a professional tour. Mrs. Whitlock attained a high degree of public favor, and had the honor of appearing before Washington at Philadelphia. In 1807 she retired from the stage.

KEMBLE, FRANCES ANNE (Mrs. FANNY KEMBLE), b. England, 1811; daughter of Charles Kemble, and granddaughter of Roger Kemble. The famous Mrs. Siddons was her father's sister. She made her first appearance on the stage, Oct. 5, 1829, in the character of "Juliet," with her father in the part of "Romeo." In 1832, better known to the world as Fanny Kemble, she came to New York, accompanied by her father. She appeared for the first time as "Bianca," in *Fazio*, at the old Park theater. She was then in the midst of her theatrical career; success was assured. As "Portia" and "Lady Teazle" she shone unrivaled, and reached her crowning triumph as "Julia," in Sheridan Knowles's masterpiece, the *Hunchback*, written expressly for her. In 1834 she married Pierce Butler of Philadelphia, a descendant of Pierce Butler of South Carolina; retired from the stage, and in 1838 went to South Carolina. In 1847 she made a reappearance on the English stage as "Lady Teazle," at the theater Royal, Manchester. In 1849 she returned to the United States, and, having obtained a divorce from her husband, resumed her maiden name and went to reside in Lenox, Berkshire co., Mass. Since that time she has given readings from Shakespeare and other dramatic authors in the principal cities of the United States and Great Britain. She has a magnificent presence; her voice is characterized as flexible, ample in quantity, and harmonious, and her self-possession as remarkable. During the war of the rebellion she resided in England, and contributed valuable articles to the London *Times* in favor of the U.S. government. She published *Francis the First, an Historical Drama* (Lond., 1832); *Journal of Frances Anne Butler* (Phila., 1835); *The Star of Seville, a Drama* (1837); *Poems* (Phila., 1844); *A Year of Consolation* (1847), descriptive of a tour through France to Rome, and Italian life and scenery; *Residence on a Georgia Plantation* (1863); a volume of poems; *Records of Girlhood; Records of Later Life*.

KEMBLE, GEORGE STEPHEN, 1758–1822; the second son of Roger Kemble, the founder of the family of British actors; b. Kington, England. He was intended for the medical profession, and was placed with a surgeon at Coventry, but preferred the stage, and, after practicing in the country, made his first appearance at Covent Garden in 1783. He was engaged also at the Haymarket. He afterwards was the manager of a company in London, Edinburgh, and Glasgow. He was a good actor, but became very corpulent, and acted only in *Falstaff*.

KEMBLE, GOUVERNEUR, 1786–1875; b. New York; son of Peter Kemble and Gertrude Gouverneur Kemble; graduated at Columbia college in 1803; traveled extensively in Europe during the Napoleonic wars; was engaged in procuring supplies for the American squadron at the time of the war with Algiers, about 1815. In 1817 he established the West Point foundry at Cold Springs; 1837–41 was a member of congress. In 1846 he served as one of the delegates from New York to the state constitutional convention. He was a public-spirited citizen, warmly interested in every project for promoting the commercial growth of the city and the nation; also a lover of art and a judicious friend of artists.

KEMBLE, JOHN MITCHEL, chiefly distinguished for his researches in Anglo-Saxon literature and the early history of England, was the son of Charles Kemble, and was b. in London, 1807. He studied at Trinity college, Cambridge, where he took the degree of B.A. in 1830, and afterwards that of M.A. While an undergraduate he spent some time at Göttingen, under Jacob Grimm, which perhaps determined the bent of his mind towards Anglo-Saxon studies. The first fruits of these studies was an edition (1833) of the poem of Beowulf (q.v.), to a second edition of which he added a translation, with a glossary and notes. Not to mention several minor publications, he edited for the English historical society a valuable collection of charters of the Anglo-Saxon period, entitled *Codex Diplomaticus Ævi Saxonici*, 2 vols.(1839–40). But his most important work, which contains the chief results of all his researches, is *The Saxons in England*, 2 vols. (1849). This work is unfinished. The author had been making preparations for two more volumes when he died suddenly, Mar. 26, 1857. Kemble was for a good many years editor of the *British and Foreign Review;* he also held the office of censor of plays under the lord chamberlain.

KEMBLE, JOHN PHILIP, son of Roger Kemble, an actor, was b. at Prescot, in Lancashire, Feb. 1, 1757. He received his education at a school in Worcester, afterwards at a Roman Catholic seminary in Staffordshire, and finally at the English college of Douai, in France. On his return to England he adopted the stage as his profession, making his first appearance at Wolverhampton Jan. 8, 1776. Sept. 30, 1783, he made his first appearance at Drury Lane in "Hamlet"—always a favorite character of his—and in 1790 he succeeded to the management of that theater. In 1803 he purchased a share in Covent Garden theater, of which he also became manager. On the destruction of the building by fire Kemble raised a new theater, which was opened in 1809, the management of which he retained till the close of his theatrical career. In June, 1817, he took leave of his patrons in London; and a few days thereafter a public dinner was given to him, under the presidency of lord Holland. Thomas Campbell made his retirement from the stage the subject of a spirited set of verses. He finally took up his residence in Switzerland, where he died, Feb. 26, 1823, aged 66 years.

Kemble was a great actor, and he loved to personate the loftier characters of the drama—kings, prelates, heroes. His figure was commanding, his voice sonorous and well modulated. He was especially successful in "Brutus" and "Coriolanus;" and the ancient playgoers, who remembered his intonation and his Roman look, used to find the more modern stage comparatively unworthy of regard.

KEMBLE, JOHN PHILIP (*ante*). He was carefully educated, with a view to his adoption of one of the learned professions as a career, his father not designing that he should follow the stage. Roger Kemble was both an actor and the manager of a provincial theater; and, one after another, all of his children attempted the drama, with different degrees of success. John was an excellent scholar, and his memory was so tenacious that it is said of him, when at school, he committed 1500 lines of Homer and recited them without an error. His last performance was at Covent Garden theater, June 23, 1817, when he played "Coriolanus." The next two years were occupied in travel, during which he visited Rome, having often expressed a desire to pass some time among the scenes made famous by Cato, Brutus, and Coriolanus, whom he had so often represented during his stage life. At the last he settled at Lausanne, where he was attacked with the fit of apoplexy which resulted in his death. While Kemble was a great natural actor, his magnificent effects were not produced without profound study. In his ordinary social life he was easy and unconventional in his manner; not in the least, when off the stage, assuming that presence which it seemed impossible for Mrs. Siddons ever to put away from her. But once engrossed in the character which he had undertaken, he became merged in it, and took on a dignity of mien and a loftiness of delivery that were imperial. It was this marvelous capacity to embody the more sublime characters of the drama, and particularly the creations of Shakespeare, that distinguished Kemble from all other actors of his time. In assuming these impersonations he appeared to become imbued with the spirit and the atmosphere of the age and race indicated, and was no longer an actor, or even an Englishman. Possibly, until the appearance of Salvini, he had no successor who could so divest himself of nationality, and so perfectly conform to the requirements of an alien character.

KEMBLE, ROGER, 1721–1802. He was the founder of the family of actors which bears his name, and of which his daughter Sarah (see SIDDONS, SARAH, *ante*) and his son John Philip (see KEMBLE, JOHN PHILIP, *ante*) are the most celebrated.

KEM'PELEN, Wolfgang von, Baron, 1734–1804; b. Hungary; attained to high official station, but became chiefly renowned for his extraordinary mechanical talent. He was a chess-player of profound ability, and this fact doubtless induced him to turn his mechanical skill to the construction of the automaton chess-player, with which his name has ever since been connected. See Automaton. Kempelen also produced an automatic figure which articulated certain words distinctly, in explanation of which he wrote *Le Mécanisme de la Parole, servir de la Description d'une Machine Parlante*, etc., 1791.

KEM'PEN, the name of two towns in Prussia.—1. A t. in Prussian Poland, in the government of Posen, on the border of Silesia, 43 m. e.n.e. of Breslau. It has two churches, a beautiful synagogue, and a hospital. Wax-refining, tanning, and brewing are carried on, and there is a trade in horses. Pop. '81, 6,168, more than half of whom are Jews.—2. A t. of Rhenish Prussia, in the government of Düsseldorf, and 20 m. n.w. of the town of Düsseldorf, near the Niers. There are manufactures of silk and woolen goods, of articles of wood, stockings, and candles. It is said to be the birthplace of Thomas à Kempis (q.v.). Pop. '80, 5,783.

KEMPENFELT, Richard, 1720–82; b. England; was made rear-admiral in the royal navy in 1779. In 1781, during the French war, he distinguished himself by capturing a French convoy which was on its way to the West Indies. In 1782 he was in command of the *Royal George*, a man-of-war carrying 108 guns, which sank on Aug 29 off Spithead. Being keeled over for repairs, a sudden gust of wind caused the sea to flow into her open ports, when she went down with all on board, numbering about 600 persons, and including the rear-admiral, officers and crew, marines, women, and a number of Jews. More than half a c. later portions of the vessel and cargo were brought to the surface by divers.

KEMPER, a co. in e. Mississippi, bordering on Alabama; 775 sq.m.; pop. 15,719—8,537 colored. It is intersected by the Mobile and Ohio railroad, and is drained by a number of streams, chiefly by Sucarnoochee creek. The soil is fertile, but a considerable portion of the surface is covered with forests. The productions are Indian corn, cotton, and sweet potatoes. Kemper co. has gained an evil reputation on account of the vicious character of the stronger portion of the inhabitants of some parts of it. At DeKalb, capital of the co., on April 29, 1877, occurred what is known as the Chisolm massacre, when judge W. W. Chisolm, his daughter and son, were brutally murdered by an infuriated but characteristic mob of the natives. The cause of the attack lay in the existence of a factious condition in politics, out of which there grew frequent deadly feuds and popular outbreaks. In connection with this state of things one Gully had been waylaid and murdered. The man headed a faction which opposed judge Chisolm and only awaited an opportunity to compass his death. The killing of Gully was charged upon judge Chisolm, as an accessory or instigator, although apparently without a shadow of evidence to sustain the charge; a warrant for the arrest of the judge was obtained, and he was lodged in jail, when the jail was besieged by a mob of the friends of Gully and enemies of the judge, and though he defended himself, aided by one of the keepers, and by his courageous wife, son, and daughter—the latter mere children—he was shot to death, while only Mrs. Chisolm was permitted to escape alive. The daughter and son fell riddled with balls. The occurrence produced a profound feeling throughout the country, but the customary delay of the law was protracted, so that though indictments were found against 31 persons for their connection with this tragedy, it was not until three years later that a trial was held which resulted in the acquittal of the accused. Mrs. Chisolm was present at the trial, sustained by the counsel of hon. Stewart L. Woodford, U.S. district attorney of New York, an act on his part which, under the circumstances of the existing state of public feeling in Kemper co., may be characterized as both generous and courageous. It is a remarkable feature in the history of this case that all public expression in the county was in sympathy with the assassins of judge Chisolm and his family, and that neither the governor of the state, the courts, nor the Federal government could procure the vindication of justice in regard to it.

KEMPER, Jackson, d.d., ll.d., 1789–1870; b. Pleasant Valley, N. Y.; graduated in 1809 at Columbia college; ordained priest in the Protestant Episcopal church in 1812; was rector for 20 years in Philadelphia and Norwalk, Conn., then missionary bishop of Indiana and Missouri, and subsequently of Iowa and Wisconsin.

KEMPER, James L. See page 890.

KEMPER, Reuben, d. 1826; b. Va.; emigrated to Ohio, and thence to Mississippi, where Kemper co. was probably named in his honor. He was adventurous in disposition, and was continually engaged in organizing expeditions against the Spaniards, who, until 1819 held possession of Florida, and were at this period also engaged in suppressing Mexican insurrection against their dominion in that country. Kemper was identified with several movements of this character, and became noted as a desperate fighter and confirmed "filibuster." In 1812 he joined a powerful expedition under Gutierrez and Toledo, being elected colonel of the American contingent, which was successful in gaining several important battles. Owing to disagreements between the Mexicans and Americans, the latter abandoned the cause, and returned home. At the battle of New Orleans Kemper held an important charge and distinguished himself.

KEMPIS, Thomas À, was so called from Kempen (now a t. of 5,400 inhabitants in the Prussian Rhine province), where he was born in 1379. His family name was Hämerken (Latinized, *Malleolus*, "little-hammer"). He was educated at Deventer, and in 1400 entered an Augustinian convent in the diocese of Utrecht, of which his brother John was prior. Here he took the vows in 1406. He entered into priest's orders in 1413, and was chosen sub-prior in 1429, to which office he was re-elected in 1448. His whole life appears to have been spent in the seclusion of this convent, where he lived to an extreme old age. His death took place in 1471, at which time he certainly had attained his 90th year, and most probably his 92d. The character of Kempis for sanctity and ascetic learning stood very high among his contemporaries, but his historical reputation rests almost entirely on his writings, which consist of sermons, ascetical treatises, pious biographies, letters, and hymns. Of these, however, the only one which deserves special notice is the celebrated ascetical treatise, *On the Following (or Imitation) of Christ*, the authorship of which is popularly ascribed to him. This celebrated book has had, next to the sacred Scripture itself, the largest number of readers of which sacred literature, ancient or modern, can furnish an example. In its pages, according to Dean Milman (*Latin Christianity*, vi. 482), "is gathered and concentered all that is elevating, passionate, profoundly pious in all the older mystics. No book, after the holy Scripture, has been so often reprinted; none translated into so many languages, ancient and modern," extending even to Greek and Hebrew, or so often retranslated. Sixty distinct versions are enumerated in French alone, and a single collection, formed at Cologne within the present century, comprised, although confessedly incomplete, no fewer than 500 distinct editions. It is strange that the authorship of a book so popular, and of a date comparatively so recent, should still be the subject of one of the most curious controversies in literary history. The book, up to the beginning of the 17th c., had been ascribed either to Thomas à Kempis or to the celebrated John Gerson (q.v.), chancellor of the university of Paris, except in one MS., which, by a palpable anachronism, attributes it to St. Bernard; but in the year 1604 the Spanish Jesuit, Mauriquez, found a MS. in which it is attributed to the abbot John Gersen, or Gesen, whom he regarded as clearly a distinct person from the chancellor Gerson. From the time of this discovery three competitors have divided the voices of the learned—not alone individuals, but public bodies, universities, religious orders, the congregation of the Index, the Parliament of Paris, and even the French academy; and the asserters of these respective claims have carried into the controversy no trifling amount of polemical acrimony. The most recent and best account of the details of the discussion, as well as its history, will be found in Malou's *Recherches Historiques et Critiques sur le Véritable Auteur du Livre de l'Imitation de Jésus Christ* (Louvain, 1849). We shall only state that M. Malou gives his verdict in favor of the claim of Thomas à Kempis, an opinion in which the learned have now generally acquiesced. The first edition of the *Imitation* was printed at Augsburg, in 1846, and before the end of that century, it was reprinted upwards of 20 times in Germany. The most remarkable modern edition is a heptaglot, printed at Sulzbach (1837), containing, besides the original, later versions in Italian, Spanish, French, German, English, and Greek. The theology of the *Imitation* is almost purely ascetical, and (excepting the 4th book, which regards the eucharist, and is based on the doctrine of the real presence) the work has been used indiscriminately by Christians of all denominations. See Kettlewell's *T. à K.* (1882).

KEMPTEN′ (anciently, *Campodunum, Campidona*), a city of Bavaria, situated on the river Iller, 64 m. s.s.w. of Augsburg, with which it is connected by railway. Like most of the Swabian cities, Kempten grew up around a monastery, which was founded by the disciples of the great Irish missionary monk, St. Gall, about the end of the 7th century. Partly by the favor of the emperors, partly through the natural sequence of the events of the period, the abbots of the monastery were the suzerains of the town and its environs, and eventually the abbot of Kempten became a prince-abbot of the empire (1348). In the secularization of the ecclesiastical principalities in 1803–4 it shared the common fate, the abbey, as well as the city and territory—comprising at that time 7 market towns, 85 villages, and above 40,000 inhabitants—being assigned to Bavaria. The present city contains (1880) 13,872 inhabitants, and is divided into the abbatial town (Stifts-Stadt), and the city proper, which lies in the plain at the foot of the hill on which the abbey stands. It is a place of considerable trade, and carries on manufactures of cotton, linen, and paper.

KEN, Thomas, Bishop, 1637–1711; b. Berkhamstead, England; educated at Winchester and Oxford; fellow of Winchester college; domestic chaplain to bishop Morley; rector of Brixton in the isle of Wight, and prebend of Westminster. In 1674 he visited Rome with his nephew, Isaac Walton, and on his return, after five years' absence, accompanied Mary, princess of Orange, as her chaplain, to Holland. In 1684 he became chaplain to Charles II., whom he attended in his last illness, "speaking to him," as Burnet records, "with great elevation of thought and expression, and like a man inspired." Shortly before the king's death he nominated Ken to the bishopric of Bath and Wells. He was not fully invested with the episcopal functions till after the accession of James II. He was the enemy of popery, and for refusing to obey the order of the king to read the declaration of indulgence was sent to the tower with six others. Nevertheless, when,

after the revolution, the prince of Orange ascended the throne as William III., he refused to transfer his allegiance to the new king, considering James still his lawful sovereign. For this he was deprived of his bishopric. But many even of his opponents esteemed him, and queen Mary on her accession settled on him a pension. He was a man of solid and extensive learning, refined taste and wide sympathies, and in office displayed great zeal and self-devotion. He is the author of several volumes of sermons, theological treatises and of many devotional writings, of which his morning and evening hymns are the most popular. The familiar doxology, "Praise God, from whom all blessings flow," is of his composition.

KENAI'ANS, a group of Indian tribes inhabiting Alaska, n. of the Atna, or Copper river; so named from the peninsula of Kenai, which divides Cook's inlet from Prince William's sound. They belong to the Athabascans, one of the two great families of aborigines in which are included all the Pacific tribes from Behring's straits to New Mexico and even as far e. as Texas. The Kenaians are also called Tnainas; they number at present about 25,000, and are a peculiar people, exhibiting unmistakable evidences of their northern Asiatic origin. They practice cremation and infanticide, and divide by caste into clans having no intimate relations with each other, as of intermarriage, etc. They include as many as 15 distinct tribes, varying in language, however, more than in customs.

KENDAL, or KIRKBY KENDAL, a municipal and parliamentary borough of England, in the co. of Westmoreland, is situated on the right bank of the Kent, 22 m. s.s.w. of Appleby. Here, in the reign of Edward III., a settlement of Flemings, under a certain John Kemp, was formed, and afterwards the town became well-known for its manufactures of woolen cloths, called, from the name of the town, *kendals.* The letter of protection, dated 1331, and granted by king Edward III., "on behalf of John Kempe of Flanders, cloth weaver, concerning the exercise of his craft," may be found in Rymer's *Fœdera,* vol. ii. p. 283. The name "kendals" is still applied to the cloths produced here, which, with carpets, worsted stockings, cottons, linsey-woolseys, doeskins, tweeds, and coat-linings, are the staple manufactures of the town. In the immediate vicinity are also several mills, dye, marble, and paper works. The weekly market is the chief one for corn and provisions in the county. Kendal returns one member to the imperial parliament. Pop. '61, 12,029; '81, 13,696.

KENDALL, a co. in n.e. Illinois; intersected by the Fox and Pishtaka rivers; 324 sq.m.; pop. '80, 13,084. The surface is undulating and diversified by prairie and woodland. Corn, oats, hay, pork, and butter are the chief productions. The county is intersected by the Chicago, Burlington, and Quincy railroad, and by the Fox river branch of same. Capital, Yorkville. Valuation of real and personal property, $10,000,000.

KENDALL, a co. in s. central Texas; intersected by the Guadalupe river; 650 sq.m.; pop. '80, 2,763. The surface is hilly or undulating. The soil partly fertile. Cattle, corn, and grass are the staple productions. Capital, Boerne. Valuation of real and personal estate, $500,000.

KENDALL, AMOS, LL.D., 1787–1869; b. Mass.; graduated at Dartmouth, and commenced the practice of law in Kentucky. For a time he held the position of tutor in the family of Henry Clay, and afterwards edited the Georgetown, Ky., *Argus.* He was appointed by president Jackson to the position of fourth auditor in the U. S. treasury department, and during Jackson's second term of office to the postmaster-generalship. Kendall founded the deaf and dumb asylum at Washington, and interested himself generally in the cause of education and of public charity.

KENDALL, GEORGE WILKINS, 1807–67; b. N. H.; a practical printer, who, in 1835, founded in New Orleans the *Picayune,* which he succeeded in building into a valuable property and a powerful influence in southern politics. In 1841 he joined the venture whose history he afterwards wrote in his *Narrative of the Texan Santa Fé Expedition.* Having witnessed the progress of the Mexican war, he devoted himself to the production of an expensive and handsomely illustrated volume, entitled *The War between the United States and Mexico, embracing* 12 *colored plates of the principal Conflicts, by Carl Nebel.* The latter part of his life was passed on an extensive cattle-farm which he established in Texas.

KENDALLVILLE, a city of Noble co., Indiana, the center of a rich agricultural region and a place of considerable business; pop. '80, 2,373. The Lake Shore and Michigan Southern and the Grand Rapids and Indiana railroads intersect each other here. There are in the place 8 churches, 1 national bank, several manufactories, and 2 newspapers.

KENDELL, ROBERT VON, b. at Königsberg, 1824. In 1862 he held a position at the court of Breslau. In 1863 Bismarck appointed him to a place in the ministry of foreign affairs, and since that time he has been the confidential companion of the great minister in his diplomatic negotiations and travels. Sometimes he has been sent alone on important diplomatic business. He represented the North German confederation at the opening of the Suez canal in 1869, and in the same year was elected to the diet. In 1873 he was appointed ambassador to Rome.

KENDRICK, Asahel Clark, d.d., ll.d.; b. Vt., 1809; graduated at Hamilton college in 1831; appointed in 1832 professor of Greek and Latin in Madison university at Hamilton; was elected professor of Greek in the Rochester university in 1850, where he still resides. He visited Europe 1852–54, attending lectures in Athens, Italy, and Germany. His contributions to reviews and magazines have been numerous, and he has published a revision of *Olshausen's Commentaries* on the New Testament; *Echoes*, a volume of translations from the French and Greek poets; an edition of *Xenophon's Anabasis*, with notes and vocabulary; translation of the epistle to the Hebrews, with notes, for Lange's *Commentary; Life and Letters of Emily C. Judson; Our Poetical Favorites*, 3 vols. Dr. K. was one of the American revision committee on the New Testament, in connection with the British committee, and ranks among the foremost American scholars in his department.

KENDRICK, John, d. 1800; b. Martha's Vineyard; was 1st lieut. of the brig *Rising Empire* in 1776, commissioned by the state of Massachusetts, and afterwards commanded a privateer. In 1787 commanded the brig *Columbia*, which, in company with the sloop *Washington*, was dispatched from Boston by Barrell, Bulfinch & Co., under the American flag, to explore the n.w. coast. He arrived at Nootka sound Sept. 17, 1788, and wintered there. After a voyage to China, he returned to Nootka, and sailed through the entire length of the strait of Juan de Fuca, and to 55° north. He explored the country in which Nootka sound is situated, and ascertained its insular character. For his services as an explorer he was awarded a medal by congress. In Aug., 1791, while lying at Nootka sound (which was then a subject of dispute between European nations), fearing to be taken by Spanish vessels if he ventured out to sea, he discovered a strait leading north-westward into the Pacific, which he named Massachusetts sound. He first drew the attention of the inhabitants of the Hawaiian islands to sandal-wood as an article of export, which was then in demand in the China market. His residence was in Wareham, Mass. He was mortally wounded in the harbor of Kealakeaka bay, during the firing of a salute in his honor, by an English captain, having been struck, while standing in his own vessel, by a portion of grape-shot that was left accidentally in one of the guns.

KENEALY, Edward Vaughan Hyde, d.c.l., 1819–80, received his education at Trinity college, Dublin, and developed a surprising aptitude for the acquisition of languages, of which he learned, sufficiently at least to enable him to translate songs and ballads with facility, no fewer than ten modern and three ancient. A man of surprising versatility and varied accomplishment, he was no less at home in pleading a cause at the bar than in constructing a pantomime or writing a contribution for *Fraser's* or the *Dublin University Magazine*. He assisted at Maginn's *Homeric Ballads*, and published *Brallaghan, or the Deipnosophists*, of his own work. He was an enthusiastic legal advocate, and became most widely known for the persistency which characterized his conduct of the celebrated Tichborne case in the interest of "the claimant." In 1874 he established a newspaper called *The Englishman*, which exerted a powerful influence and gained a wide circulation. In 1875 he was elected to parliament, and carried into the house of commons the same combative disposition which had previously influenced his course. The defeat and condemnation of his client, the self-styled sir Roger Tichborne, soured and embittered his disposition, and rendered the latter years of his life distressingly prominent in their antagonism to general public opinion.

KE'NEH, or Gheneh, the ancient Cænopolis, a t. of upper Egypt on the n. bank of the Nile, nearly opposite the ruins of Denderah, and 34 m. n. of Thebes. It has a large trade with Arabia by way of Cossein, and is one of the stations for the pilgrims from west and central Africa. Travelers to and from India sometimes travel by the Nile through Keneh. It is noted for the manufacture of porous water jars, etc., which are floated down the Nile on rafts.

KEN'ILWORTH, a market t. of England, in the co. of Warwick, situated 4½ m. n. of the town of that name, and the fashionable town of Leamington. Tanning operations are here carried on upon a large scale, and comb-making to some extent. Pop. '81, 4,150. The town, however, is chiefly interesting from historical association. The castle of Kenilworth, united to the crown domains in the reign of Henry IV., was conferred by Elizabeth upon Robert Dudley, earl of Leicester, who here, in 1575, entertained his sovereign for 17 days, at a daily cost of £1000. The present noble owner is the right hon. the earl of Clarendon. Extensive remains of the castle still exist, which are well preserved and much visited by the aristocracy and by tourists from all parts of the country. There are also ruins of the ancient monastery.

KEN'ITES, a tribe or nation originally occupying with the Amalekites the country of Arabia Petræa. In the time of Abraham they are mentioned (Gen. xv. 19) in connection with the Kenizzites and Kadmonites. At the exodus they pastured their flocks around Sinai and Horeb. Jethro was a Kenite (Judges i. 16), and as he is represented in Exod. ii. 15, 16, as dwelling in the land of Midian, and as being prince or priest of Midian, and in Num. x. 29, as being a Midianite, it may be inferred that the two people were the same, or at least that the Kenites were a branch of the larger nation of the Midianites. The Kenites led a nomadic life in the region n. of Sinai. The kindness

which Jethro showed Moses led to a firm alliance between the two peoples. The family of Jethro accompanied the Israelites into Palestine, where they continued their nomad life. Heber, the husband of Jael, who slew Sisera, belonged to the family of Jethro, and is called "Heber the Kenite." Other families of Kenites resided in Palestine, among whom were the Rechabites (1 Chron. ii. 55, Jer. xxxv. 2). The region which they received in the southern border of Judah they retained in the time of David, but after this nothing more is heard of them in sacred history. The Kenites in the time of Jethro possessed a knowledge of the true God, and there is reason to believe that that knowledge continued with the families that settled in Palestine.

KENNA, JOHN E. See page 890.

KENNEBEC', a river in Maine, United States, which rises in Moosehead lake, in the w. of the state, and runs in a southerly direction into the Atlantic ocean, after receiving the Androscoggin, 18 m. from its mouth. On its banks are the important towns of Bath, Gardiner, Hallowell, and the state capital, Augusta. It is navigable by ships to Bath, 12 m.; by steamboats to Hallowell, 40 miles. In its course of 150 m. the river falls 1000 ft., affording abundant water-power. At Augusta are falls, increased by a dam 584 ft. long, supplying water to large factories, saw-mills, etc.

KENNEBEC', a co. in s.w. Maine, established Feb. 20, 1799; 1000 sq.m.; pop. '80, 53,061. Portions of its territory were taken off in 1809, 1827, 1838, and 1854, to form other counties. It contains 24 towns and 3 cities, Augusta, Gardiner, and Hallowell. The Kennebec river flows through its center, and the Androscoggin crosses the western portion. Its rich valleys and wide arable lands are diversified by beautiful lakes, brooks, and waterfalls. The climate is healthy, though the winters are long and severe. It has great grazing facilities. The chief natural products are hay, potatoes, grain, wheat of superior quality, fruit, garden vegetables, wild berries, and maple sugar. Quarries of granite suitable for building purposes are extensively operated near the Kennebec river, and clay slate is also found. The soil is a clay loam from 4 to 20 in. deep, with hard clay pan. The lakes and ponds emptying into the tide-waters of the Kennebec furnish valuable water-power that is largely employed. The principal industries are the manufacture of clothing, oil-cloth, woolen goods, long lumber, shingles, clapboards, scythes and bricks. Total value of manufactures in '70, $7,006,204. Ice is largely exported. It is intersected by the Maine Central and Kennebec and Portland railroads, and there is easy access to all commercial centers by rail, steamer, and coaster. Co. seat, Augusta, which is also the capital of the state.

KENNEBUNK', a t. in York co., Maine, 24 m. from Portland, on the Kennebunk river, formerly included in the town of Wells; incorporated June 24, 1820; pop. '80, 2,852; total value of real estate, $1,577,504. It is on the Boston and Maine railroad. It employs the most valuable water-powers at the head of tide on the Mousam river (which is fed by the great Mousam pond, 7 m. long), running cotton-mills, grist-mills, sash and blind factories, machine shops, and saw-mills. It has an iron foundry, a national bank, 6 churches and an insurance company. The industries include the manufacture of twine, braid, boots, and plows. Granite of a superior quality is quarried extensively.

KENNEBUNKPORT, a t. in York co., Maine, formerly known as cape Porpoise, and originally incorporated 1717 under the name of Arundel; name changed 1821; pop. '80, 2,405. Valuation of real estate, '70, $901,431. It is at the mouth of the Kennebunk river, 4 m. from Kennebunk and 10 m. s. of Biddeford. It has a fine harbor, and is much frequented as a summer resort. It has 5 churches and a graded school, and engages quite extensively in navigation. It has good water-powers, with shingle, grist, carding and saw mills, some of them operating only at high water.

KENNEDY, BENJAMIN HALL, b. 1804; graduated at Cambridge in 1827, and the following year was elected a fellow and classical lecturer of St. John's college, Cambridge. After having held for 6 years the position of assistant master at Harrow, he became head master of Shrewsbury school in 1836, in which office he remained during 30 years. He resigned it in 1866 to accept the regius professorship of Greek at Cambridge, becoming canon of Ely in 1867, and a member of the university council in 1870. Dr. Kennedy published a number of classical text-books, translated *The Birds* of Aristophanes into English verse, likewise the Psalter, besides publishing a collection of Greek, Latin, and English poetry.

KENNEDY, CHARLES RANN, 1808-67; brother of Benjamin H., b. at Birmingham, England; graduated at Cambridge, became a fellow of the university, and was admitted to the bar in 1835. He was author of several law books, a volume of poems, and translations from the Greek and Latin poets.

KENNEDY, GRACE, 1782–1825; a Scotch writer of prominence during the early part of the 19th century. She wrote novels of a religious tendency, among which were *Father Clement; Anna Ross; Dunallan; Jessie Allan; Decision*, etc., which were translated into German and French, and were highly esteemed.

KENNEDY, JOHN PENDLETON, LL.D., 1795–1870; b. Baltimore. He was admitted to the bar, was for several years a member of the Maryland house of delegates; from 1839–1845 was a member of congress, where he advocated whig principles, and during Fillmore's administration was secretary of the navy. But he is now remembered chiefly as a writer of sketches and novels of considerable merit. Of these, *Horse-Shoe Robinson*

(1835), whose action takes place during the American revolution, was the most popular and still finds readers. The scene of *Rob of the Bowl* (1838) is laid in Maryland in the time of Cecil Calvert.

KEN'NET, a river in Berks co., England, whose course lies nearly eastward from East Kennet, near which place it rises, until it empties into the Thames at Reading.

KENNET, White, D.D., Bishop, 1660–1728; b. Dover, England; educated at Westminster school and Oxford; he early became rector of Amersden. In 1691 he returned to Oxford as tutor and vice-principal of Edmund hall, where he had for a pupil the famous antiquary, Hearne. He was afterwards archdeacon of Huntingdon, dean of Peterborough, and in 1718 bishop of Peterborough. He was an eloquent preacher, a learned antiquary, historian, and theologian, and a man of great mental activity. He was a keen disputant, took an active part in the religious controversies of the time, and was a strong opponent of the high church party. He published numerous works, the most important of which are *Parochial Antiquities; History of England from the Accession of Charles I. to that of Queen Anne; A Register and Chronicle, Ecclesiastical and Civil, from the Restoration of King Charles II.* His sermons and pamphlets are now interesting principally to the antiquary. He left numerous historical manuscripts now a part of the Lansdowne collection in the British museum.

KENNICOTT, Benjamin, an eminent biblical scholar of the last century, was b. at Totness, in Devonshire, April 4, 1718, and educated at Oxford, where he highly distinguished himself. He took his degree of M.A. in 1750, having been previously elected a fellow of Exeter college; in 1767 he was appointed Radcliffe librarian; and in 1770 canon of Christ church, Oxford, where he died, Sept. 18, 1783. The whole interest and importance of Kennicott's life are comprised in his great undertaking for the improvement of the Hebrew text. In 1753 he published a work entitled *The State of the Printed Hebrew Text of the Old Testament Considered.* This contained, among other things, observations on 70 Hebrew MSS., with an extract of mistakes and various readings, and strongly enforced the necessity for a much more extensive collation, in order to ascertain or approximate towards a correct Hebrew text. He undertook to execute the work in the course of 10 years, and labored, until his health broke down, from 10 to 14 hours a day. In spite of considerable opposition from bishops Warburton, Horne, and other divines, Kennicott succeeded in enlisting the sympathies and obtaining the support of the clergy generally. Upwards of 600 Hebrew MSS., and 16 MSS. of the Samaritan Pentateuch, were collated, with the assistance of other English and continental scholars. The first volume of his edition of the Hebrew Bible appeared in 1776, and the second in 1780, accompanied by a very useful and instructive dissertation. The text chosen was that of Van der Hooght, and the various readings were printed at the bottom of the page. The *Variæ Lectiones Veteris Testamenti* (Parma, 1784–88), published by De Rossi, is a valuable addition to Kennicott's Hebrew Bible. Jahn published at Vienna (1806) a very correct abridgment, embracing the most important of Kennicott's readings.

KENNING TO THE TERCE, a phrase in Scotch law to denote the process by which a widow, whose husband has died infeft in lands, acquires a separate interest in a definite part thereof. She is by law entitled to the rents of one-third of the husband's lands, called her terce (q.v.); and the above process is carried on before the sheriff of the county, the object being to define and set out a particular portion of the lands to which her life-rent may attach.

KENO'SHA, a co. in s.e. Wisconsin, bordering on lake Michigan on the e., drained by the Fox and Des Plaines rivers; 280 sq.m.; pop. '80, 13,550. Its fertile soil affords a luxurious production of wheat, oats, Indian corn, hay, flax, etc. This county is traversed by the Chicago and Northwestern railroad. Capital, Kenosha.

KENO'SHA, a city of Wisconsin, the capital of Kenosha co., on lake Michigan, 51 m. n. of Chicago, and 34 m. s. of Milwaukee; pop. '80, 5,039. The Chicago and Milwaukee and the Kenosha and Rockford railroads pass through the place, which also has a good harbor. There are 9 churches, 13 weekly newspapers, 4 hotels, a public library, excellent public schools and school-buildings, and manufactories of carriages, wooden implements and furniture, leather, etc.; also foundries, lumber-yards, and numerous stores and shops.

KENO'ZA LAKE, in Haverhill, Mass., a small but very beautiful sheet of water, a favorite resort for parties of pleasure. The poet Whittier, whose boyhood was spent in the town, has made it a subject for his verse.

KENRICK, Francis Patrick, D.D., 1797–1863; b. Dublin; was sent in 1815 to Rome, where he studied two years at the house of the Lazarists and four years in the college of the Propaganda; was ordained a Roman Catholic priest in 1821, and immediately came to the United States to take charge of an ecclesiastical seminary about to be started at Bardstown, Ky., which he conducted for nine years. In 1828 he published *Letters of Omicron to Omega*, in defense of the Roman Catholic doctrine of the eucharist in reply to Dr. Blackburn, of Danville college. In 1830 he was consecrated bishop of Arath *in partibus*, and made coadjutor to bishop Connell, of Philadelphia, whom he succeeded in 1842. In the anti-papal riots in Philadelphia he prevented, by his wisdom and firmness, retaliatory acts on the part of his people. He founded the

theological seminary of St. Charles Borromeo in Philadelphia. In 1851 he was appointed by the pope archbishop of Baltimore and "apostolic delegate" to preside over the first plenary council of the United States held at Baltimore in May, 1852, and in 1859 the "primacy of honor" was conferred upon him and his successors, giving them precedence over all Roman Catholic prelates in the United States. He published, in 1837, letters *On the Primacy of the Holy See and the Authority of General Councils* in reply to bishop Hopkins, of Vermont. His most celebrated works are his Latin treatises, *Theologia Dogmatica*, 4 vols., and *Theologia Moralis*, 3 vols., which are used as text-books in nearly all the Roman Catholic seminaries. At the time of his death he was engaged in revising the English translation of the Scriptures with copious notes. He was a vigorous writer, an acute controversialist, and able biblical critic. During the rebellion he was thoroughly loyal to the Union.

KENRICK, Peter Richard, D.D., archbishop of St. Louis, Mo., and brother of the archbishop of Baltimore; b. Dublin, 1806; educated at Maynooth; ordained priest in Ireland, and soon afterwards emigrated to Philadelphia, where he was editor of the *Catholic Herald*, and published several works. He was also made vicar-general of that diocese. In 1841, at the request of bishop Rosati, of St. Louis, he became coadjutor with the right of succession. In 1843, on the death of Dr. Rosati, he was appointed bishop. He has been active in the cause of education, and founded numerous charitable institutions. He is the author of *The Holy House of Loretto* and *Anglican Ordination*. He was a member of the Vatican council, and though he opposed the defining of the dogma of papal infallibility as inopportune, he acquiesced in the final decree, and promulgated it with the other decrees of the council.

KENSETT, John Frederick, 1818–72; b. Conn.; was, when quite young, an engraver of vignettes for bank-notes, and, while practicing this art, studied painting for amusement. He made a journey to England in 1840, and remained there some years. In 1845 he exhibited in the royal academy, and meeting with success, studied in Rome during two seasons, contributing some of his finished works to the American art union. In 1848 he exhibited in the national academy of design, where his works attracted general public notice. From this period he made his residence in New York, contributing regularly to exhibitions and gaining a high reputation. The distinguishing features of his work are harmony in composition, with delicacy and refinement in execution. He was a close observer and an accurate delineator of nature, in whom the poetic temperament was manifest. His works are frequently luminous, and always pleasing in color.

KENSINGTON GARDENS, one of the public ornamental parks of London, extends on the w. side of Hyde park, from which it is partly separated by the Serpentine. It is traversed by walks, and ornamented with rows and clumps of noble trees. Near the western border of the park stands Kensington palace, an edifice of brick, originally the seat of Heneage Finch, earl of Nottingham and lord chancellor of England, and afterwards bought by king William III. William III., queen Mary, queen Anne, and George II. all died in this palace, and here her majesty queen Victoria was born. The gardens at first consisted of the grounds attached to the palace, and were only 26 acres in extent, but have been frequently enlarged, and now are two and a half miles in circuit.

KENT, the central co. of Delaware; bounded e. by Delaware bay, and drained by Choptank river and Duck and Mispillion creeks; 500 sq.m.; pop. '80, 32,874. An extensive portion of the surface is covered with forests. The soil is generally fertile. Corn, wheat, oats, peaches, and pork are the chief products. The county is intersected by the Delaware, and the Maryland and Delaware railroads. Valuation of real and personal estate, $20,000,000. Capital, Dover; also the capital of the state.

KENT, a co. in the n.e. part of Maryland; bounded n. by Sassafras river, on the s.e. by Chester river, and on the w. by Chesapeake bay; 280 sq.m.; pop. '80, 17,605. It has an undulating surface and a soil moderately fertile. Wheat, oats, corn, peaches, and other fruits are the staple productions. It is intersected by the Kent county railway. Valuation of real and personal estate, $13,090,185. Capital, Chestertown.

KENT, a co. of Michigan, in the s.w. central part of the southern peninsula; 864 sq.m.; pop. '80, 73,252. The surface is rolling, with a rich limestone soil. Cattle, wool, grain, hay, and butter are among the chief productions. The chief branches of manufacture are lumber, carriages, flour, cooperage, clothing, and saddlery. The county is traversed by numerous railroads, chiefly centering in Grand Rapids, the capital.

KENT, a co. of Rhode Island, bordering on Connecticut; bounded on the e. by Narragansett bay, and drained by the Pawtuxet, Moosup, and Wood rivers; 190 sq.m., pop. '80, 20,587. Its surface is partly hilly, and much of it is covered with forests. The chief agricultural productions are hay, potatoes, and corn. The prosperity of the county depends chiefly upon cotton manufacture, there being within its limits 25 establishments for printing cotton goods. The county is intersected by the Providence and Stonington, and the Hartford, Providence and Fishkill railroads. Valuation of real and personal estate, $17,849,153. Capital, East Greenwich.

KENT: co., Texas. See page 890.

KENT, an important maritime co. of England, occupies a portion of the s.e. angle of the country, and is bounded on the n. by the estuary of the Thames, and on the e. and s.e. by the strait of Dover. Area 1,004,984 statute acres; pop. '81,977,585. Besides the

river which forms the northern boundary of the county, the chief streams are the Medway, which flows n.e. into the estuary of the Thames; the Stour, and the Darent. The surface is undulating, being traversed from w. to e. by the North Downs (see article Downs). With a climate which is in general mild and genial, and a fertile soil of mixed chalk, gravel, and clay, Kent is, in an agricultural sense, a highly productive county. Besides the usual crops, great quantities of seeds are raised for the London markets, as canary and radish seeds, spinach, cresses, and white mustard. There are also numerous market-gardens and orchards. Hops (q.v.) are one of the chief products of the county. Above 40,000 acres, forming in all a hop-field more than four times as extensive as that of any other hop-growing county of England, are here devoted to the cultivation of this plant. Great numbers of sheep are fattened on the excellent pasturage found on the tracts of alluvial soil that skirt the banks of the Thames and Medway, and especially on the Romney marsh, which comprises 44,000 acres. The county returns six members to parliament.

Kent is unusually rich in historical association. For its early history, see article Heptarchy. It has been the scene of frequent sieges, battles, and revolutions; and the county is also bound up with the social history of the country through the three well-known insurrections which broke out here under Wat Tyler, Jack Cade, and sir Thomas Wyatt. Of its numerous and interesting ecclesiastical edifices, it will suffice to specify here the cathedrals of Canterbury and Rochester. It contains the important dock-yards and arsenals of Woolwich, Chatham, and Sheerness; and the famous watering-places of Margate, Ramsgate, and Tunbridge Wells.

KENT, a co. of New Brunswick, bordering on the gulf of St. Lawrence and Northumberland strait; drained by the Richibucto, Cocagne, and other navigable streams; 1720 sq.m.; pop. 22,618. The harbors of Cocagne, Buctouche, and Richibucto offer capital facilities for ship-building, and much timber is shipped thence to England. The county is traversed by the Intercolonial railway. Capital, Richibucto.

KENT, a co. of Ontario, bordering on lakes St. Clair and Erie; intersected by the Thames river, and traversed by the Great Western and Canada Southern railways; 644 sq.m.; pop. '81, 36,626. Capital, Chatham.

KENT, Edward Augustus, Duke of, 1767–1820; the fourth son of George III. and father of queen Victoria; entered the army and served under sir Charles Grey in the attack on the French West India islands; and in recognition of his valor, fort Royal, in Martinique, was changed to fort Edward. He was made duke of Kent and Strathearne, and apppointed commander-in-chief of the British forces in North America. The name of the island of St. John was changed in his honor to Prince Edward island. In 1818 he married Victoria Maria Louisa, relict of the prince of Leiningen. Alexandrina Victoria, now queen, was his only child.

KENT, James, ll.d., b. in Fredericks, N. Y., July 31, 1763; d. Dec. 12, 1847. He graduated from Yale college in 1781, and was admitted to the bar in 1785. He was elected to the New York assembly in 1790 and 1792, and again in 1796, having in the meanwhile removed to New York city, where, 1793–98, he was professor of law in Columbia college. His ability was already recognized by men like Hamilton and Jay, with whose political principles he was in sympathy, and the latter, then governor of New York, appointed him in 1798 a justice of the supreme court, of which from 1804–14 he was chief-justice. In 1814 he became chancellor of the state, which office he retained till 1823, when his age passed the constitutional limitation, and compelled his retirement. He then resumed his lectures at the Columbia college law school. His *Commentaries upon American Law* appeared from 1826–30. Their great merits were speedily recognized both in this country and England, and have made the work, which has since passed through many editions, the classic of American law literature. Kent's services to American jurisprudence, however, can be best judged by his printed decisions in the N. Y. reports. He administered law with all the learning of the books, but with a regard for the needs of a new community in which hitherto unmooted questions were constantly arising for adjudication. As a chancery judge he enlarged the sphere of his court, which till his time had been of little importance, and it is not too much to say that he created courts of equity in New York.

KENT, William, 1685–1748; b. Yorkshire; was apprenticed to a coach-painter, but believing that he had talent for something higher, he went to London to pursue portrait and historical painting. Here he found those who furnished him the means of completing his studies in Italy. After residing there six years he formed the acquaintance of the earl of Burlington, and returning to England he lived with him for several years; but not having the prospect of success in the pictorial art, he relinquished it for ornamental architecture and landscape gardening, greatly distinguishing himself as the founder of a new style of landscape gardening, the main feature of which was the restoration of nature, which previous artists had entirely banished from their designs. His new style is illustrated in the Kensington gardens. Walpole styles him "the creator of modern gardening." As an architect, he designed the splendid palace of the earl of Leicester at Holkham and the temple of Venus at Stowe.

KEN'TIGERN, Saint. See Mungo, Saint.

KENTISH FIRE, a term employed to denote the vehement and protracted cheers with which the rabble greeted the No-popery orators at the public meetings held in Kent to prevent the passing of the Roman Catholic relief bill (1828–29).

KENTISH RAG, a dark-colored, hard, calcareous sandstone, which occurs at Hythe, and others places on the coast of Kent, in the lower greensand measures. It sometimes attains a thickness of 60 or 80 feet.

KENT ISLAND, the largest island in Chesapeake bay, 15 m. long, belongs to Queen Anne co., Md.; pop. 2,137. Its soil is fertile. The first settlement of the state was made upon it, 1631, by William Claiborne and others. It has 4 churches, and is the seat of a profitable oyster fishery.

KENTON, a co. of Kentucky, lying upon the Ohio river, directly s. of Cincinnati; 170 sq.m.; pop. '80, 43,983. Its surface is hilly, its soil fertile. Tobacco, corn, and live-stock are its chief productions. It has also considerable manufacturing interests. The Kentucky Central and the Louisville and Cincinnati railroads pass through the county. Capital, Covington.

KENTON, the capital of Hardin co., O., on the headwaters of the Scioto river, near the center of the state; pop. '80, 3,940. It is the seat of a considerable lumber trade, and is in the midst of a prosperous agricultural region. It has 3 weekly newspapers, banks, churches, and manufactories.

KENTON, Simon, 1755–1836; b. Va.; one of the first settlers of the state of Kentucky. He fled from Virginia on account of a dispute with a rival in love, whom he supposed himself to have killed, and became an associate of Daniel Boone. He was a daring scout and Indian fighter, and for twelve years was engaged in almost constant Indian warfare. He also served through the war of 1812. Despite his great services his lands, to which he had never perfected his title, were taken from him; but they were subsequently restored and he was pensioned.

KENT'S CAVERN, or Kent's Hole, a celebrated bone-cave, situated in a small, wooded, limestone hill, at the junction of two valleys, about a mile eastward from Torquay harbor, and half a mile from the northern shore of Torbay. It consists of two parallel series of chambers and galleries, having an approximately north and south direction. The aggregate length of the eastern series is upwards of 250 ft., and the western is probably longer. It has two narrow external openings or entrances, in the face of one and the same low natural cliff, on the eastern side of the hill, and both opening into the eastern suite of apartments. They are nearly on the same level, about 50 ft. apart, 70 ft. above the bottom of the valley immediately beneath, and from 180 to 190 ft. above the level of mean tide.

Nothing is known respecting the origin of its name, and tradition fails to reach back to the date of the discovery of the cavern. The earliest known mention of it is in *A Tour through the Island of Great Britain*, 1778. At that time it appears to have been much visited by the curious; but it did not attract the attention of scientific inquirers until Sept., 1824, when Mr. Northmore visited it with the "double object of discovering organic remains, and of ascertaining the existence of a temple of Mithras." He declared himself "happy to say that he was successful in both objects."

In 1825 the rev. J. McEnery commenced those researches which extended at intervals over fully four years, and has forever associated his name with the cavern. He made arrangements for the publication of an illustrated narrative of his labors; but the intention was unfortunately abandoned. After his decease it was feared that his MSS. had been lost or destroyed; but after a variety of fortune, they ultimately became the property of the Torquay natural history society, and were published *in extenso* by Mr. Pengelly in 1869, in the *Transactions* of the Devonshire association.

Mr. McEnery's labors may be thus summed up: (1) In the cave-earth, beneath a thick floor of stalagmite, he discovered remains of upwards of 20 species of extinct and recent animals commingled. Amongst them were a few teeth of *machairodus latidens;* a species not met with elsewhere in Britain, and which many palæontologists hesitated to place in the cave fauna. Mixed up with those remains, and under precisely the same conditions, he found a considerable number of human flint "implements."

Though the inosculation of human industrial remains with the bones of extinct mammals was confirmed by the subsequent researches of Mr. Godwin-Austen in the same cavern, and later still by those of the Torquay natural history society, even scientific men were unprepared for it, and it was either discredited or explained away. In 1858, however, a virgin cavern was discovered at Brixham, on the opposite side of Torbay, and was systematically and carefully explored by a committee, under the auspices of the royal and geological societies of London. The results obtained were so perfectly trustworthy, and so strictly confirmatory of the statements which from time to time had been reported from Kent's Hole, that it began to be generally suspected that the latter were, after all, worthy of credence.

As a result of this feeling, the British association, in 1864, appointed a committee—consisting of sir C. Lyell, sir J. Lubbock, Mr. Evans, Mr. Pengelly, prof. Phillips, and Mr. Vivian; to whom Mr. Busk, Mr. Boyd Dawkins, Mr. Sanford, and Mr. Lee were subsequently added—to make a complete and systematic exploration of

so much of Kent's Cavern as still remained intact. The committee have carried on their researches without intermission, and presented full annual reports from 1865 onwards. The work is placed under the superintendence of two of the members, who visit the cavern daily. The method of exploration is so simple as to be easily carried on by the workmen, and so accurate as to render it easy to determine the exact position in which every object was found.

The walls of the cavern, in some of its branches, display traces of the long-continued action of water running in a sensibly horizontal direction. These, however, may be regarded as indications of the agency by which the cave was formed, but not necessarily by which the deposits were introduced.

In descending order the deposits were: (1) Huge blocks of limestone, which from time to time had fallen from the roof. In some instances, two or more blocks lay one on another. Sheets of stalagmite sometimes lay between them, or invested the whole, so as to form a dome-shaped mass; whilst others were without any trace of this material. (2) Black mold, from 3 to 12 in. deep. (3) Stalagmitic floor, from a mere film to upwards of 5 ft. thick; but commonly ranging from 16 to 20 inches. From its prevalent texture, it was termed the *granular stalagmite*, to distinguish it from another and older floor of the same material. It contained numerous fragments and blocks of limestone, and graduated downwards into an extremely hard concrete or breccia. (4) A black band, of irregular outline, from 2 to 6 in. thick, and mainly composed of bits of charcoal. This band was exceptional, being found only in one spot, from 30 to 40 ft. from one of the cavern entrances, where it covered about 100 sq.ft. only. Throughout about half this area it was in immediate contact with the nether surface of the stalagmitic floor, from which, elsewhere, it was separated by a layer of red loam, which never exceeded 6 in. in thickness. (5) Red cave-earth, with angular fragments of limestone, from mere splinters to blocks almost as large as those lying on the surface. Typically, this deposit consists of about equal parts of red earth and of stones; but in some places, the former greatly preponderates, whilst in others the latter is most prevalent. Comparatively small well-rounded fragments of rocks, not derivable from the cavern hill, occasionally present themselves. The materials of the cave-earth have no approach to stratification or symmetrical arrangement, and the stones lie at all angles. Small thin films of stalagmite occur at all depths, sometimes encrusting bones or stones, or cementing them into a firm breccia. The depth of this deposit is generally unknown; it in most places exceeds 4 ft.—the depth to which the excavation is restricted at present—but in others it does not attain to this, and occasionally there is none. (6) Where the bottom of the cave-earth has been reached, a second floor of stalagmite occurs beneath it. It is generally of greater thickness than the granular floor, and in one instance is little short of 12 feet. On account of its structure it is known as the *crystalline stalagmite*. (7) Under this again is a mechanical deposit, consisting of subangular and rounded pieces of red grit, not derivable from the cavern hill, embedded in a sandy paste of the same color, and denominated breccia.

The objects found in the black mold form a large and very miscellaneous collection, including objects extending from the present day back to mediæval and even pre-Roman times. The most important are stones of various kinds, well rounded, and occasionally perforated by marine organisms; potsherds representing a large number of vessels; curvilineal plates of slate, probably covers for earthenware utensils; "spindle whorls;" amber beads; an awl, a spoon, a wedge, and a chisel, all formed of bone; bone combs, which may be likened to small shoe-lifters having teeth in the broad end; a spear-head, a socketed celt, a spoon, a fibula, and rings, all of bronze; lumps of smelted copper; marine shells, such as still exist in Torbay; and bones and teeth of various animals of existing species, including man.

The comparatively few objects found in the granular stalagmitic floor include pebbles of various kinds, flint implements, marine shells, pieces of charcoal, impressions of ferns, and remains of extinct and recent animals, including man, and the mammoth, cave rhinoceros, hyena, and bear.

The black band beneath the floor was extremely rich in objects, of which the principal were remains of the ordinary extinct and recent cave mammals; flint implements and chips; a bone awl; a bone fish-spear, or "harpoon" barbed on one side only; a bone needle or bodkin, with a well-formed eye; and burnt bones. The flint specimens were keen-edged, brittle, and chalk-like in color and texture. They averaged about ten in every cubic foot of material.

Throughout the entire depth yet excavated the cave-earth contained bones of recent and extinct mammals and birds—chiefly the former; fecal matter almost exclusively finely comminuted bone; coprolites, *ovate* and *lanceolate* flint implements, and flint chips; two bone "harpoons;" a bone pin; small pieces of burned bone: "whetstones," and a stone hammer, or crusher. The bones are very abundant; most of them are of an almost chalk-like whiteness, whilst a few are discolored; many are merely small splinters; a considerable number have been fractured, and gnawed precisely after the manner of modern hyenas; several are split longitudinally, in such a way as to betoken human agency, and as if to furnish laths of bone for tools; those immediately under heavy blocks of limestone are crushed; they are all characterized by a specific gravity greater than that of those found above the stalagmite; on the tongue being applied to

CENTRAL STATES

EASTERN PART.

Railroads thus —— Canals ——

Scale of Miles

0 10 30 50 100

93 91 89 87 85 83 81

47 45 43 41 39 37

Longitude West of Greenwich

them, they all adhere to it; in no instance have the elements of an entire skeleton, or anything approaching to it, been found together; and remains of many different kinds of animals are often lying in contact. Certain branches of the cavern appear to be richer than others in bones; but wherever the cave earth occurs, with its usual accompaniment of limestone fragments, they may be expected in average abundance, irrespective of depth below the stalagmite. The bone "harpoons" and pin have the same chemical condition as the bones—they both adhere firmly to the tongue. The "whetstones" are long narrow pieces of greenish grit, and are similar in form and material to those found in the Bruniquel caves in France. The "stone hammer" is a small ellipsoidal pebble of coarse, hard, red sandstone. According to a report furnished by Messrs. Boyd Dawkins and Sanford, in 1869, the following species of mammals occur in the cave-earth: cave-lion, a *felis* of the size of lynx, wild-cat, cave hyena, wolf, fox, *canis vulpes* var. *spelæus*, *canis* of the size of isatis, glutton, badger, cave-bear, grizzly bear, brown bear, mammoth, *rhinoceros tichorhinus*, horse, urus or wild bull, bison, "Irish elk," red-deer, reindeer, hare, cave-pika, water-vole, field-vole, bank-vole, *arvicola gulielmi*, and beaver; and in 1873 Mr. Pengelly added *machairodus latidens*. More recent research up till 1879 has revealed additional specimens of animal remains, a repetition of those already discovered. In the chamber called the cave of inscriptions, there are initials and dates graved on the stalagmite, 1609 being the oldest, and 1792 the most modern. But the most ancient inscription is that in the bear's den: "William Petre, 1571," which has been associated with a person of this name living at that period.

The animal remains found in the crystalline stalagmite and the breccia beneath are exclusively those of bear. There is no trace of the hyena, the most prevalent species of the cave-earth, and these lower deposits belong apparently to an era earlier than that of his arrival in Britain. But here, too, there are flint implements. They resemble those of the cave-earth in being without a trace of polish, but are less symmetrical in form.

From the crushed character of the bones immediately beneath blocks of limestone, it may be inferred that the cave-earth, on which they lay, was firm, unyielding, and capable of offering a resistance to the huge blocks as they fell from the roof; and hence it may be concluded, also, that the flint-tools did not, as Mantell and others supposed, by sinking through the red earth, reach a depth greater than that which they primarily occupied.

Whilst it is possible that objects belonging to different eras may be commingled in the cave-earth, it is certain that the most modern thing it contains is more ancient than the oldest article in the stalagmite formed on it; and as human tools have been found in the cave-earth, and bones of extinct mammals in the stalagmite, the contemporaneity of man with these extinct forms may be regarded as certainly established.

It is no doubt true that a very large amount of labor has been expended on Kent's cavern without the discovery of any portion of the human skeleton in the cave-earth. The fact is one of considerable interest, but it does not warrant a doubt respecting man's existence, especially in the presence of such positive facts as bone-tools and burned bones, to say nothing of the flint implements. Moreover, the stalagmite floor, with its extinct mammals, has yielded a portion of man's osseous system—part of an upper jaw, containing four teeth. In their reports the exploring committee remark that, amongst other results of their investigation, so many instances of the valuelessness of merely negative evidence have presented themselves, as to encourage the hope that remains of man, though probably in but sparing numbers, may yet be found in the cave-earth.

KENTUCKY, a river of Kentucky, which rises in the Cumberland mountains, on the s.e. frontier of the state, and after a winding n.w. course of 260 m. enters the Ohio about 50 m. below Cincinnati. The river runs through most of its course between perpendicular limestone rocks, through which it appears to have worn its bed, and is celebrated for the romantic beauty of its scenery. It is navigable by steamboats to Frankfort, 60 m., and by means of 17 dams and locks, to the Forks. Its banks abound with anthracite, iron, and marble.

KENTUCKY, one of the United States of America, in lat. 36° 30′ to 39° 6′ n., and long. 82° 2′ to 89° 40′ w., is bounded on the n. by Ohio, Indiana, and Illinois, e. by West Virginia and Virginia, s. by Tennessee, and w. by Missouri. Area, 37,680 sq.m., or 24,115,200 acres. It has 110 counties. The capital is Frankfort, and the chief towns, Louisville, Covington, Newport, Lexington, Danville, Maysville, and Paducah. The country is rolling, hilly in some portions, and in the s.e. mountainous, some of the elevations rising to 3,000 feet. Its chief rivers are the Ohio and Mississippi on its borders, and the Tennessee, Cumberland, Kentucky, Licking, and Green. The soil is mostly fertile, and contains some of the finest agricultural regions in America, producing wheat, maize, cotton, hemp, tobacco, and all the fruits of the warmer temperate regions. Herds of cattle find rich pasture, and millions of swine fatten in the woods. There are coal-beds, some rich in oil, extending nearly across the state. Of the many caverns, the Mammoth cave (q.v.) is the most celebrated. There are also deposits of lead, iron, beautiful marbles, and salt. In 1875 there were 1360 m. of railways opened for traffic. In 1878 the value of assessed property was $357,326,013, and the state debt was $1,852,-841. In the same year Kentucky possessed 2 universities and 42 colleges, besides numerous public and other schools, with 245,139 pupils. An agricultural college, with

200 students, was established in 1868 at Ashland. Kentucky was formerly a portion of the western territory of Virginia, and once the home of warlike Indians, from the sanguinary contests with whom it derived its name—"the dark and bloody ground." It was settled by Daniel Boone (q.v.) in 1769, organized as a territory in 1790, admitted as a state in 1792. Upon the breaking out of the rebellion in 1861, efforts were made by governor Magoffin to make the state secede, or at least to place her in an attitude of neutrality. Better counsels, however, prevailed, and the loyalty of the state was maintained, though many of her citizens joined the rebels. Pop. in '70, 1,321,011.

KENTUCKY (*ante*) was not originally a possession of any one of the aboriginal tribes, but a common hunting-ground for them all. The first white explorer was John Finley, who in 1767 went there with a few companions from North Carolina. Two years later Daniel Boone, Finley, and four or five others visited the region, and in 1770 James Knox, with a number of others from Virginia, made extensive surveys for the purpose of locating land-bounty warrants. In 1774 a settlement was made at Harrodsburg by James Harrod. In 1775 Daniel Boone built a fort at Boonesborough. The Indians met these white settlers with a stern and bloody resistance. Daniel Boone, in 1775, made a treaty with the Cherokees, who agreed to sell the region to Richard Henderson and his party. Virginia rightfully claimed the territory as her own, and refused to treat the sale as valid, but finally consented to give the purchaser a title to 200,000 acres at the mouth of Green river. In 1776 Kentucky was organized as a Virginia county, and that state held jurisdiction through the revolutionary war and for several years afterwards. The inhabitants, upon the conclusion of the war, sought to effect a peaceable separation from Virginia, and the latter in 1786 assented to the proposed arrangement, which, however, was not at that time consummated. The citizens were very much prejudiced against the national government on account of a report which gained wide currency that Mr. Jay, while minister to Spain, had ceded to that country the navigation of the Mississippi. Spain, under these circumstances, entered upon an intrigue to induce Kentucky to set up a government independent of the United States, promising special commercial advantages in such a case. The excitement continued for some time, but in 1790 Kentucky was organized as a territory of the United States, and in 1792 admitted to the Union as a state. The white population then numbered 75,000. Indian wars continued to distract the frontiers, and there was great dissatisfaction with the national government for its neglect to afford protection to the inhabitants. There were other grievances, such as a burdensome whisky-tax and the course of the government in relation to the French republic, with which the Kentuckians felt a very strong sympathy. The scheme for independence was partially revived, but the storm soon blew over. The navigation of the Mississippi, however, was a subject of much uneasiness until the retrocession of Louisiana to France and the subsequent purchase of the territory by the United States put an end to all the pending troubles.

The development of the state from this time forward was rapid. It was from the beginning a slave state. In 1860, just before the rebellion, the population numbered 1,155,684, of whom 225,483 were slaves and 10,684 were free colored. Of the whole colored population 44,711 were mulattoes. The total population in 1880 was 1,377,179, of whom 271,451 were colored, while 59,517 were of foreign birth. The number of farmers and planters was 171,625; number of persons 10 years old and upward who were unable to read, 258,186; unable to write, 348,392. Of the latter class, 124,723 were white, and 133,895 colored. Of the total population 10 years of age and over, 320,571 were engaged in agriculture; in professional and personal occupations, 104,239, of whom 1,981 were lawyers, 2,985 physicians, and 1,999 clergymen; engaged in mining and mechanical industries, 61,481.

The w. portion of the state is slightly undulatory, with broad level plains here and there. The s.e. part is broken by the Cumberland mountains and their spurs, none of whose summits attain an altitude of more than 3,000 feet. The hills and valleys here are well wooded. West and north of this region lies a gently undulating upland, intersected by rivers flowing through narrow and deep valleys. The soil, in spite of the scarcity of spring water, is of the very finest quality, being in part what is known as the "blue grass region," extending from the Ohio river southward to the Cumberland, through the central portion of the state. In the western part of the state are the "barrens," so-called, which were once thought to be of small value, but which are now more highly appreciated, though not equal to the "blue grass region" in point of fertility. Kentucky is well watered. The Mississippi flows along its western border for 80 m., while along the n. and n.w. border the Ohio has a course of nearly 600 m., and is navigable the whole distance. Only a few small streams empty into the Mississippi from Kentucky. Those which flow into the Ohio are the Big Sandy, which has its sources in West Virginia; the Licking, which has its mouth at Covington, opposite Cincinnati; the Kentucky, which has its sources in the Cumberland mountains, and has a course of 250 m. within the state; Green river, 300 m. in length, and navigable for steamboats 200 m.; the Cumberland, which rises in the valley between the Laurel and Cumberland mountains, flows tortuously through 7 or 8 counties, passes into Tennessee, then returns, flows tortuously in a n.w. course, and empties into the Ohio about 10 m. above the mouth of the Tennessee, and is navigable for 200 m. to Nashville, Tenn.; and the Tennessee, which has a course of 70 m. within the state.

The southern end of the coal measures of Indiana and Illinois extends across the Ohio into Breckinridge co., and continues almost to the mouth of that stream, along the whole w. and n.w. boundary of the state. The coal measures, which occupy the whole eastern part of the state, are a part of the great Appalachian coal-field which overspreads western Virginia and Pennsylvania. The extensive limestone formations abound in fossils. Hydraulic limestone is found near the falls at Louisville, and is extensively used in the manufacture of cements. The limestone region abounds in caves, some of which are very remarkable. The mammoth cave in Edmonson co., near Green river, is one of the wonders of the world. It has been explored for a distance of more than 10 miles. Low swamps, called "licks," frequented by deer and elk, occur in the limestone region. They were once the resort of the buffalo, and at a very early age, of several species of animals now extinct. One of the most famous of these places is the Big Bone lick not far s. of Cincinnati. Lead ores are found in some places. Salt springs are of frequent occurrence among the sandstone rocks, and sulphur, chalybeate, and saline springs abound. In Clay and Meade counties salt in large quantities is obtained by boring. Iron ores are found in the n.e. corner of the state, where numerous furnaces are in operation; also in the slate and limestone regions, and in the s.w. counties bordering on the Tennessee and Cumberland rivers. The climate of the state is somewhat variable, but on the whole very pleasant. The mean annual temperature is about 55°. In winter the mercury occasionally falls to zero and even below, while in summer it rises to 94° or 100°. Winter usually continues from the end of Nov. to the beginning of April, but the snows are light and seldom remain long upon the ground.

In the forests, which are still extensive, are found tulip-trees, ash, oak, elm, hickory, walnut, cherry, sugar-maple, and black and honey locust. The principal fruit-trees are the apple and peach. As an agricultural state Kentucky holds a high rank. The wheat crop of 1884 was estimated at between 13,000,000 and 14,000,000 bushels—a large increase over previous years. The barley crop of 1883 was 450,468 bushels; the corn crop of 1884 was estimated at 71,880,000 bushels; the yield of rye, '83, 705,104 bushels; of oats, at 6,899,800 bushels; of hay, 270,738 tons; and of tobacco, 171,059,155 lbs. In 1878 71,000 acres of peach orchards produced about 6,000,000 bushels of peaches; 250,000 acres of apple-orchards produce annually over 21,000,000 bushels of apples. The number of bales of cotton produced, 1879, was 1,367; of tons of coal mined, 1883, over 1,650,000. In 1878 the number of swarms of bees was 157,370, and the product of honey 4,723,100 lbs. The value of taxable property belonging to white persons in 1878 was $354,019,676; amount belonging to colored people, $3,306,837—total $357,326,513. The valuation for 1879 was less than this by about $4,000,000. Number of horses in 1884, 370,000; mules, 113,785; cattle, 498,888; hogs, 1,954,919. Many millions of young fish have been placed in the waters of the state, with highly encouraging results. The total number of manufacturing establishments in 1880 was 5,328, employing $45,813,039 of capital, and 37,391 persons, paying $11,657,844 in wages, and producing goods valued at $75,483,377. The chief industries or products were: agricultural implements, bagging, blacksmithing, boots and shoes, carpentering and building, carriages and wagons, clothing, flour and grist mill products, furniture, iron products, leather, liquors, lumber, saddlery and harness, tobacco in various forms and woolen goods. The principal article of manufacture is whisky, the product for 1882 being about 30,386,400 galls. Of direct foreign commerce Kentucky has very little. Louisville and Paducah are the only ports of entry. The principal exports are hemp, flax, tobacco, horses, mules, hogs, cattle, bagging, and rope. The quantity of shipping is small. Several of the large rivers, chiefly the Kentucky and Green, have been made navigable by dams, locks, etc. The locks and dams on the Kentucky were transferred, 1880, to the general government. The canal around the falls of the Ohio at Louisville enables large boats to pass at most seasons of the year.

There were in the state, in 1884, 2534 m. of railroads, with capital stock of $61,450,695. The principal lines were the Louisville and Nashville and branches, the Cincinnati Southern, the Paducah and Elizabethtown, the St. Louis and South-eastern, the Louisville, Cincinnati and Lexington, and the Kentucky Central. In 1884 there were in operation 67 national banks, with a capital of $12,960,400, and a circulation of $6,462,460. The number of insurance companies in 1881 was 102, of which 92 were fire and 10 life. The amount of risks written in the state by the fire companies was over $128,000,000.

The public institutions are: the asylum for the blind at Louisville; the institution for deaf-mutes in Danville; the institution for the feeble-minded at Frankfort; three asylums for the insane; and the state penitentiary at Frankfort. The total number of libraries in 1870 was 5,546, containing 1,909,230 volumes; 4,374 of these libraries were private. The principal libraries are that of the Kentucky university at Lexington and of the Lexington library company; the state library in Frankfort; that of the Danville theological seminary; the public library of Kentucky at Louisville; that of St. Joseph's college at Bardstown; that of Center college in Danville; and that of the Louisville library association. In 1880 the periodicals of the state were 11 daily, 2 tri-weekly, 7 semi-weekly, 160 weekly, and 23 monthly.

The total number of religious organizations in 1870 was 2,969, having 2,696 edifices, and property valued at nearly $10,000,000. The principal denominations are the Bap-

tist, Christian, Protestant Episcopal, Methodist, Presbyterian, and Roman Catholic. The school system of the state is not as efficiently managed as it should be. Colored children are not allowed to attend the schools provided for the whites. The number of children of school age in the state in 1884 was: whites, 500,824; colored, 92,470. There were in 1880 about 208,800 native-born white persons unable to write. The total receipts from the school fund, '83–84, were $872,089. The state is divided into 7,000 school districts. Widows with children to be taught are allowed to vote for trustees. Three colored trustees are annually appointed for each colored district by the white county commissioner. The school-buildings in Louisville are alone worth almost as much as all those of the rural districts. Louisville spends upon her schools $261,000 annually, almost one-third the whole cost of education to the state. The colored schools are so feebly supported that in many cases only incompetent teachers can be employed. Wise men are laboring energetically to improve the common school system, and with good prospects of success. There are in the state at least 12 schools with normal departments. The number of colleges for young men, or both sexes, '82, was 17; colleges and seminaries for young ladies, 20. The principal collegiate institutions are the Kentucky university at Lexington, embracing the agricultural and mechanical college established by the congressional land grant; the Kentucky military institute at Frankfort; Berea college at Berea; Bethel college at Russellville; Cecilian college (Roman Catholic) at Elizabethtown; Center college (Presbyterian) at Danville; Georgetown college (Baptist) at Georgetown; and St. Mary's college (Roman Catholic) at St. Mary's station. There are also 8 or 10 institutions for the education of women, each under the direction of some Christian sect. Instruction in theology and medicine is afforded also in several different institutions.

Frankfort is the capital of the state. The governor is chosen by the people for four years, and receives a salary of $5,000. He is ineligible for two consecutive terms. The lieutenant-governor is elected for four years, and presides in the senate for $8.00 per day. The legislature, consisting of a senate of 38 members and a house of representatives of 100, meets biennially in the odd years. Members are paid $5.00 per day and mileage. The court of appeals, which has only an appellate jurisdiction, consists of a chief-justice and three judges, each of whom receives an annual salary of $5,000. The circuit and county judges are elected by the people. The general election occurs on the first Monday in August. A large majority of the people of Kentucky were opposed to the rebellion of 1861, and gov. Magoffin endeavored, but without avail, to keep the state in a neutral position and exclude both the union and the confederate forces from its territory. But the geographical position of the state—to say nothing of other circumstances, rendered this scheme impracticable. Of course the United States claimed the allegiance of the state, and sent its armies there as it found occasion, and a considerable number of Kentucky soldiers volunteered to serve the union cause. The confederates made a desperate effort to set up a state government in the interest of the confederacy, but with small success. Several battles were fought in Kentucky, with the final result of driving the confederate forces out of the state. The majority of the people, though disapproving of the armed rebellion, were yet in strong sympathy with the south in the political matters at issue, and made all the opposition in their power to the emancipation policy of Mr. Lincoln. A large number of soldiers from Kentucky served as volunteers in the confederate army, and when the struggle was over the state made a stout opposition to the reconstructive measures of the government. The electoral votes of Kentucky for president and vice-president of the United States have been cast as follows: 1792, 4 for Washington and Jefferson: 1796, 4 for Jefferson and Burr; 1800, 4 for Jefferson and Burr; 1804, 8 for Jefferson and Clinton; 1808, 7 for Madison and Clinton; 1812, 12 for Madison and Gerry; 1816, 12 for Monroe and Tompkins; 1820, 12 for Monroe and Tompkins; 1824, 14 for Jackson, and 7 each for Calhoun and N. Sanford; 1828, 14 for Jackson and Calhoun; 1832; 15 for Clay and Sargeant; 1836, 15 for Harrison and Granger; 1840, 15 for Harrison and Tyler; 1844, 12 for Clay and Frelinghuysen; 1848, 12 for Taylor and Fillmore; 1852, 12 for Scott and Graham; 1856, 12 for Buchanan and Breckinridge; 1860, 12 for Bell and Everett; 1864, 11 for McClellan and Pendleton; 1868, 11 for Seymour and Blair; 1872, 8 for Hendricks and 4 for B. Gratz Brown for president, and 8 for B. Gratz Brown, 3 for T. E. Bramlette, and 1 for W. B. Macken for vice-president; 1876, Tilden and Hendricks, 12; '80, Hancock and English, 12; '84, Cleveland and Hendricks, 13.

KENTUCKY UNIVERSITY, at Lexington, Fayette co., Ky.; chartered in 1858 and opened at Harrodsburg in 1859 under the auspices of the Disciples, sometimes called Campbellites. In 1865 it was removed to Lexington, and Transylvania university was merged in it. At the same time, the state agricultural and mechanical college, established under the congressional land grant of 1862, and for which the citizens of Lexington had contributed the sum of $100,000 to purchase a model and experimental farm and to erect suitable buildings, was made a part of the university. The institution embraces a college of arts, with thorough preparatory department, the college of the Bible, a commercial college, and a college of law. Each of these colleges has its own faculty and presiding officer, while the general supervision of the whole is devolved upon the regent, who is appointed by the curators. The library contains more than 10,000 vols., and the museum over 100,000 specimens; the cabinet of natural history has more than 40,000

specimens. The lands of the university, embracing Ashland (formerly the estate of Henry Clay) comprises an area of 433 acres; and its endowment, including its real estate, amounts to about $800,000. (The commercial and Bible colleges contain the majority of the students.) In 1884 it had 11 instructors and 500 students; president, C. H. Loos.

KENYON, JOHN, 1783–1856; b. in Jamaica, W. I.; d. in the isle of Wight. He published *Rhymed Plea for Tolerance* (1833) and *Poems* (1838). He was best known as the patron and friend of literary men, among whom at his death he distributed a large part of his fortune.

KENYON, LLOYD, Lord, 1733–1802; admitted to the bar 1756, attorney-general 1782–84, master of the rolls 1784–88. In 1788 he succeeded lord Mansfield as lord chief-justice of the court of king's bench, with the title of lord Kenyon, baron of Eredington.

KENYON COLLEGE, at Gambier, Knox co., Ohio, was founded in 1824 by the efforts of bishop Philander Chase of the Protestant Episcopal church, who collected in England a large portion of the funds for its endowment. The village is named for lord Gambier, one of the largest contributors to the college. Its endowment amounts to $230,000; its annual income to $22,000. It has 14 buildings for various uses, a library of 22,000 volumes, and good cabinets and art collections. Number of professors in 1880, 7; of other instructors, 2; of students, 120, one-half of whom are in the preparatory department; of alumni, 606. The theological department at the same date had 4 professors, 8 students, and 174 alumni. President, G. T. Bedell, D.D.

KE'OKUK, a co. in the s.e. part of Iowa, intersected by the Skunk river, the n. and s. forks of which unite within its limits; and the s. fork of the English river drains a part of the county; 576 sq.m.; pop. '80, 21,259. The surface is undulating, the soil fertile. Wheat, corn, oats, hay, cattle, and pork are the chief products. Bituminous coal is found in some places. The Oskaloosa branch of the Chicago, Rock Island and Pacific railroad passes through the county. Valuation of real and personal property, $6,000,000. Capital, Sigourney.

KE'OKUK, a city of Iowa, in the s.e. corner of the state, on the Mississippi river, 205 m. above St. Louis. It is the site of the state medical college, and has several academies and public schools, 10 churches, 4 banks, and a hospital. Keokuk has a large commerce, being at the head of the low-water navigation of the Mississippi, and the terminus of two railways. Pop. '70, 12,766.

KE'OKUK (*ante*), a city in Iowa, one of the capitals of Lee co.; pop. '80, 12,117. The largest steamers ascend the Mississippi to this point. The city is connected with Warsaw, Ill., by a railroad bridge across the river, which is here a mile wide, and flows between bluffs nearly 150 ft. high. The St. Louis, Keokuk and North-western railroad has its northern, and the Keokuk and Des Moines railroad its south-eastern, terminus here. The latter connects at this point with the Toledo, Peoria and Warsaw railroad, and with branches of the Wabash and Chicago, and Burlington and Quincy railroads. The Mississippi Valley and Western railroad extends from this city to Quincy, and the Keokuk and St. Paul railroad to Burlington. The city has 20 churches, a high school, a commercial college, a public library of 7,000 volumes, 2 national banks, 3 savings banks, 2 daily and 5 weekly newspapers, breweries, foundries with machine-shops, flour mills, and manufactures of soap, candles, sash, doors, tobacco, etc. The place is also the terminus of a new ship-canal, 9 m. long and 300 ft. wide.

KEPLER, or **KEPPLER,** JOHANN, one of the greatest astronomers of all ages, was b. at Magstatt, a small village in Würtemberg, 10 m. from Stuttgart, Dec. 27, 1571. While a mere child he was left to his own resources, and his early education in consequence would have been entirely neglected had he not been admitted into the convent of Maulbronn. Kepler afterwards studied at the university of Tübingen, and devoted nearly the whole of his time to mathematics and astronomy. In 1593 he was appointed professor of mathematics at Grätz. At this time Kepler's views of astronomy, as seen in his *Prodromus*, were somewhat mystical; he supposed the sun, stars, and planets were typical of the Trinity, and that God distributed the planets in space in accordance with the regular polyhedrons, etc. Yet this searching after harmony led him to the discovery of the three remarkable truths called *Kepler's laws*. Kepler, about 1596, commenced a correspondence with Tycho Brahé, and in 1599 went to Prague to aid him in his researches. Tycho obtained for him a government appointment; but the salary was not paid, and Kepler lived for eleven years there in great poverty. He then obtained a mathematical appointment at Linz, and, fifteen years afterwards, was removed to the university of Rostock; but poverty from the same cause still pursued him, and he died shortly after at Ratisbon, Nov. 15, 1630. Kepler's connection with Tycho Brahé had a salutary effect upon his fiery enthusiasm, but, happily for science, the timid councils of the old astronomer were only partially followed. Kepler established the law of the diminution of light in proportion to the inverse square of the distance, and was acquainted with the fact "that the attractive force of the sun decreases as his light;" it is strange that this latter fact did not lead him to anticipate the discovery of Newton. In 1609 he published his *Astronomia nova*, a commentary on the motions of Mars, in which, taking for his base of operations the observations of Tycho, he

determined the eccentricity and aphelion of this planet, on the supposition of a circular orbit, and found the results quite irreconcilable with observation. This led him to his first law, *that the planets move in ellipses with the sun in one of the foci.* The second law, that *the radius-vector* (q.v.) *sweeps over equal areas in equal times,* he at first asserted dogmatically, and was for a long time puzzled to find some proof of it (the infinitesimal calculus not having at that time been invented); but at last he hit upon the expedient of dividing the ellipse into an immense number of small triangles, whose areas could be easily found. His third law (the first discovered) was an attempt to harmonize in some way the period and mean distance of the planets, and after twenty-two years of vigorous application, he discovered that *the square of the periodic time is proportional to the cube of the mean distance.* These discoveries, great as they undoubtedly are, are rendered still more so when we take into account the little real knowledge of the heavenly bodies existing at that time, and the scanty means in the hands of astronomers for making discoveries. Kepler also affirmed the essential inertia of matter, the first of Galileo's laws of motion; the dependence of the curvature of the path of planets on the attraction of the sun (Kepler unfortunately thought it was *magnetic* attraction) and the proportionality of the mutual attraction of bodies to their respective masses; he demonstrated the four new planets of Galileo to be satellites of Jupiter; gave a complete theory of solar eclipses; and calculated the exact epoch of the transits of Mercury and of Venus across the sun's disk. He also made numerous discoveries in optics, general physics, and geometry. A collected edition of Kepler's works was published by Frisch (1858–71).—See Brewster's *Lives of Galileo, Tycho de Brahé, and Kepler* (1841); and Reitlinger, Neumann, and Gruner, *Johannes Kepler* (1868).

KEPPEL, Augustus, Viscount, 1725–86; son of William, second earl of Albemarle. Entering the navy in 1740 he accompanied Anson in his voyage round the world. For several years he made successful expeditions. In 1761, with a small squadron, he captured Belle isle, was created the following year rear-admiral of the blue, and in 1778 admiral of the red. In an engagement with the French off Ushant, July, 1778, he was censured for neglect of duty by sir Hugh Palliser, tried by court-martial, but honorably acquitted. In 1782 he was raised to the peerage as viscount Keppel, baron Elden. Twice he was first lord of the admiralty.

KEPPEL, George Thomas, b. 1779; son of the earl of Albemarle; entered the British army, and was at the battle of Waterloo. He was secretary to lord John Russell, and in 1832 and 1847 was elected to parliament. He published *Journey across the Balkan* and *Memoirs of the Marquess of Rockingham.*

KEPPEL, Sir Henry, b. 1809; younger son of the earl of Albemarle and brother of George Thomas; rose from lieut. in the British navy in 1829 to the rank of admiral in 1869. He was early stationed in India, the Mediterranean, and at the cape of Good Hope; on the coast of China he had command of the *Dido,* 1841–45; at Sebastopol, in the Crimean war, had command of the naval forces; in 1857–58 commanded the naval forces against China, destroying a Chinese war-fleet, for which he was made K.C.B.; in 1867–69 was vice-admiral and commander-in-chief in China and Japan. He published *Expedition to Borneo,* 2 vols., and *Visit to the Indian Archipelago.*

KERATINE, or Elastine, one of the nitrogenous non-crystalline bodies which are allied to the proteids. See Proteine and Proteine Bodies. The other members of this group, as now known, are mucine, chondrine, glutine, elastine, and nucleine. Keratine, though somewhat resembling the proteids in composition, differs from them widely in other properties. Hair, epidermis, nails, feathers, and horn are composed principally of keratine. Heated with water in a digester at 302° F., keratine is partially dissolved, with evolution of sulphureted hydrogen. Prolonged boiling with alkalies and acids will dissolve keratine. The alkaline solutions when treated with acids evolve sulphureted hydrogen, the sulphur constituent being loosely united to the other elements. The exact chemical composition of keratine has not been determined, but lies somewhere between the following numbers: Oxygen, 20.7 to 25; hydrogen, 6.4 to 7; nitrogen, 16.2 to 17.7; carbon, from 50.3 to 52.5; sulphur, .7 to 5 per cent. According to Lear, the composition of human hair, exclusive of ash, is as follows: Carbon, 50.42; hydrogen, 6.34; nitrogen, 17.33; oxygen, 20.91; sulphur, 5.

KÉRATRY, Auguste Hilarion de, 1769–1859; b. Rennes, France; was a member of the chamber of deputies in 1818 and 1827, and by his liberal measures after the restoration of the Bourbons did much to promote the revolution of 1830, resulting in the downfall of Charles IX. and accession of Louis Philippe. He was made a peer of France in 1837 by Louis Philippe. In 1848 he was again a member of the legislature. After the *coup d'état* of Napoleon, to whom he was strongly opposed, he withdrew from public life. His principal published works are *Inductions morales et philosophiques,* and several poems and romances.

KÉRATRY, Émile de, Comte, b. Paris, 1832, of a noble family in Bretagne; son of Auguste Hilarion, who was a moderate participant in every revolution in France from 1789 to 1851. Émile entered the army, served in Africa, the Crimea, and Mexico. In 1865, returning to Paris, he became one of the editors of the *Revue Contemporaine,* in which his articles on the French occupation and campaigns of Mexico threw such light

upon them as to produce a lively sensation in France. Afterwards editor of the *Revue Moderne*, he renewed attention to the same subject. The articles brought out disdainful allusions to their author by Rouher from the tribune; to which Kératry replied by a published letter, announcing that if the government failed to investigate the Mexican misdoings he would make public complete revelations of them. In 1869, against the opposition of the government and the clergy, he was elected deputy to the *corps legislatif*. There he became an active member of the opposition, which denounced the prorogation of the legislature by Napoleon III. During the session of 1870 Kératry was active in pressing measures for the reorganization of the army, the suppression of the *garde mobile*, the creation of a militia, and the imposition of the condition of suffrage that each elector should know how to read and write. He demanded the restitution to the national archives of papers which Napoleon had caused to be abstracted; and became an advocate of the restoration of rights and citizenship to the Orleans princes. On the opening of diplomatic difficulties with Prussia in July, 1870, Kératry was hot for war. When, Sept. 4, 1870, the empire crumbled under defeat and the public contempt, Kératry was made prefect of police by the new committee of defense. He ordered the removal of all Germans from Paris and its environs, sent the Orleans prince back to England, and made quick changes in the police department of Paris to deprive its organization of a political or partisan character. He soon resigned this position to take a diplomatic mission to Spain; leaving Paris in a balloon. The mission was futile. On his return Gambetta made him commander-in chief of the forces organizing in the five departments of Bretagne; but, disagreeing with Gambetta, he resigned Nov. 27. In Mar., 1871, Thiers appointed him prefect of the department of the *Haute-Garonne*, where he took prompt and harsh measures to signalize his detestation of ultra-democratic opinions. In Nov., made prefect of the *Bouches-du-Rhone*, he exhibited such lack of tact, and hostility to the republican party, that his resignation was willingly accepted in Aug., 1872; and he was made an officer of the legion of honor. He then became one of the editors of the journal, *Le Soir*. He is the author of several comedies and graver works, as follows: *A bon chat bon rat; Toile de Pénélope; La Guerre des Blasons; Vie de Club; Contre-Guerilla;* the *Créauce Jecker; L'Elevation et la Chute de Maximilien;* and *Le Quatre Septembre:* the last is a curious exposition of the police system under the empire. He has also published *Maurad V. Prince, Sultan, Prisonier d'état.*

KERBELA, or MESHED-HOSSEIN, a large city of Asiatic Turkey, pashalic of Bagdad; pop. 20,000. The wall surrounding it is 2 m. in circumference. The city has five gates, a large bazaar, and several caravansaries. Its ancient name was *Vologesia*. It is a great resort for Mohammedan pilgrims, as the spot where Hossein, the son of Ali, by Fatima, the daughter of the prophet, having been slain in the vicinity, was buried. An ancient canal connects the town with the Euphrates. Many Persians reside here.

KERFOOT, JOHN BARRETT, D.D., LL.D., b. in Dublin, Ireland, 1816; educated at the Flushing institute and St. Paul's college, N. Y., graduating in 1834. He was ordained deacon in 1837, priest in 1840, and bishop of Pittsburg in 1866. He received the degree of D.D. from Columbia college in 1850 and also in 1865 from Trinity college, Hartford, and the degree of LL.D. from the university of Cambridge, England, in 1867. From 1842 to 1864 he was president of St. James's college, Md.; and of Trinity college, Hartford, Conn., 1864–66. He d. 1881.

KER'GUELEN'S LAND, or ISLAND OF DESOLATION, is situated in the Southern or Antarctic ocean, the latitude and longitude of its southern extremity, cape George, being 49° 54′ s., and 70° 12′ e. It is about 100 m. long and about 50 m. broad. It consists chiefly of moss-covered rocks of primary formation. It is said, however, to produce coal fit for steamships. The island was discovered in 1772 by the French navigator, Ives Joseph de Kerguelen Tremarec.

KERGUELEN'S LAND CABBAGE, *Pringlea antiscorbutica*, the only known species of a very curious genus of plants of the natural order *cruciferæ*, found only in Kerguelen's land. It has a long, stout, perennial root-stock; a *bolled* head of leaves very similar to those of the common garden cabbage. Captain Cook first discovered this plant, and directed attention to it. It is exceedingly abundant in all parts of Kerguelen's land, which produces only seventeen other flowering plants. The root-stocks have the flavor of horse-radish. The dense white heart of the cluster of leaves tastes like mustard and cress, but is coarser. The whole foliage abounds in a very pungent pale-yellow essential oil, which is confined in vessels that run parallel to the veins of the leaf. The Kerguelen's land cabbage is used by voyagers, boiled either by itself, or with beef, pork, etc., and its antiscorbutic qualities make it very important to them.

KERKI, a t. of Bokhara, Central Asia, about 120 m. s. of Bokhara city, on the left bank of the Jihoon or Oxus. Kerki is a place of considerable importance, being a frontier fortress, and the key to Bokhara on the side of Herat. The town, which is spread around the fortress, consists of 150 houses, 3 mosques, a small bazaar, and a caravansary; it is also defended by a good wall and deep ditch. The inhabitants are Uzbegs and Turkomans, employed a little in trade, but more in agriculture.

KERLÉRIC, LOUIS BILLOUART DE, 1704–70; b. at Quimper, France; entered the marine corps in his boyhood, and distinguished himself in many campaigns, especially

on board the *Neptune* in 1746 and 1747. In 1752 he was made governor of Louisiana, and remained in that position 10 years. On his return to France in 1764 he was accused of peculation and cruelty and committed to the Bastile. In 1769 he was sentenced to banishment, but, while he was preparing to submit new exculpatory evidence to the tribunal, he died. He is believed to have written memoirs of Louisiana; but if so they have been lost.

KERMAN′ (ancient *Carmania*), one of the eastern provinces of Persia, lying s. from Khorassan, and having an area of about 59,000 sq. miles. The n. and n.e. are occupied by a frightful salt waste called the *desert of Kerman*, which forms a part of the great central desert of Iran. On this extensive tract, not a blade of grass is to be seen. The southern portion, although mountainous, is equally arid and barren with the n., except the small tract of Nûrmanshir, towards the e., which is fertile and well watered. Roses are cultivated for the manufacture of "attar of roses." Silk and various gums are exported. Cattle, sheep, goats, and camels are reared, and the hair of the last two has long been celebrated for its length and fineness. The inhabitants, who number about 300,000, are chiefly Persians proper; the rest are Guebres or Parsees, Belûchis, and other wandering tribes.

KERMAN, the chief town, is situated near the middle of the province, in the central mountain range, and contains a population estimated at 30,000. The manufactures are chiefly shawls, carpets, and matchlocks. The trade, though still considerable, is very small compared with what it was during the last century, when Kerman was the great emporium for the trade by the Persian gulf and the Indian ocean. In 1794 it was taken and pillaged by Aga Mohammed, and 30,000 of the inhabitants made slaves. But the chief cause of the decline of its trade was the fall of Gombroon (q.v.), its port, before the rising prosperity of Bushire.

KERMANSHAH′, a flourishing modern t. of Persia, in the province of Ardelan, near the right bank of the river Kerkhah. It is the center of converging routes from Bagdad, Tehran, and Ispahan. Its commerce is considerable, and there are manufactures of carpets and weapons. Pop. 30,000.

KERMES, sometimes also known in commerce as *scarlet grain*, a dyestuff which consists of the bodies of the females of a species of *coccus* (q.v.) (*C. ilicis*). It has been supplanted over the greater part of Europe by cochineal (q.v.), but is still used in some parts of the south of Europe, and more extensively in India and Persia. The kermes insect is abundant in these regions, attaching itself to the leaves of a small species of oak, the kermes oak (*quercus coccifera*), a low bushy shrub with evergreen spinous leaves, much resembling a holly. In some parts of Spain the kermes oak grows in great profusion, as on the slopes of the Sierra Morena. Many of the inhabitants of Murcia live by collecting kermes. This is chiefly the employment of women, who scrape the insects from the trees with their nails, which they suffer to grow long on purpose. The kermes insect attacks the young shoots of the shrub, the female affixing itself and remaining immovable, till, after attaining its full size, about that of a pea, it deposits its eggs, and dies. Kermes is gathered before the eggs are hatched. It is thrown into vinegar, and afterwards dried in the sun or in an oven. It has been employed from time immemorial to dye cloth of a blood-red color. It was called *thola* by the Phenicians, *coccos* by the Greeks, kermes by the Arabians. From kermes comes the French *cramoisi*. It is supposed to have been the substance employed in dyeing the curtains of the Jewish tabernacle (Exod. xxvi.).

KERMES MINERAL, so called from its resemblance in color to the insect kermes, is an antimonial preparation which was discovered by Glauber (q.v.). The method of preparing it subsequently became known to M. de la Ligerie, from whom the king of France purchased the prescription in the early part of the 18th century. It was at that period often described as *Carthusian powder*, or *poudre des Chartres*, in consequence of a Carthusian friar having effected some remarkable cures by it. Chemists differ slightly as to its composition, but it is generally regarded as a tersulphuret of antimony. Kermes mineral is scarcely ever employed in this country, but it is much used in France and Italy. Its effects are much the same as those of the golden sulphuret (sulphide) of antimony and of the oxysulphuret of antimony of the London pharmacopœia, it being a sudorific in small doses (e.g., half a grain), and an emetic and purgative in large doses.

KER′MESSE, church festivals or out-door *fêtes* in Europe, particularly in Belgium and Holland, where they are the scenes of all kinds of amusements like those of any other kind of village *fête* or fair. The word is derived from *kerk*, the Dutch for church, and *messe*, the French for mass. The kermesse probably originated in the tact of the priests or pastors in promoting the enjoyment of their people and making them minister to the popularity and support of the church, as church fairs do now. Teniers and other Flemish artists have pictures that represent the old-time scenes of the kermesse. Dancing, comic processions, and many of the scenes of the carnival are among the amusements. K. (or *Kirmess*) is applied in the U. S. to an indoor festival and fair combined.

KERN, a large co. in the s. central part of California, drained partly by Kern river. Tulare lake lies upon its n. border, while the Coast range of mountains lies along the s.w. boundary; pop. '80, 5,601. Between this Coast range and the Sierra Nevada is an

extensive valley or plain. Several high peaks of the Sierra Nevada are within the county. The Tejon pass, in the s. part, is more than 5,000 ft. above the sea. The highlands produce good timber, including pine, fir, and oak. The valleys are well adapted to pasturage. Gold, salt, sulphur, and petroleum are found in some places. Gold, wool, and barley are the chief products. The Southern Pacific railroad passes through the county. Valuation of real and personal property, $3,000,000. Capital, Bakersfield.

KERN, a name applied formerly to Irish and Gaelic infantry soldiers.

KERN, J. CONRAD, a Swiss statesman, was b. in 1808, near Arenenberg, in Thurgau. He studied theology at Bâle; but he abandoned his intention of entering the church, and turned his attention to law, which he studied successively at Berlin, Heidelberg, and Paris. On his return to his native canton he was appointed to the presidency of the supreme court and of the council of public instruction; and in these offices he made himself remarkable by his talent for public speaking, and his great legal and administrative sagacity. When in 1838 the French government demanded the extradition of prince Napoleon, Kern took the most prominent part at the diet in stirring up the Swiss to refuse to be intimidated. In 1848 Kern took an active part in the preparation of the federal constitution. He afterwards established the polytechnic school of Zurich, one of the most admirable institutions of its kind in Europe. In 1857 he was selected to complete the negotiations regarding the dispute with Prussia; and at the conference of Paris between the great powers, Kern represented Switzerland.

KERNAN, FRANCIS, b. N. Y., 1816, studied at Georgetown, D.C., and, immediately after graduating, adopted the profession of law, commencing practice at Utica, N. Y., in 1839. He gained a high reputation as a lawyer, reporting the decisions of the court of appeals for three years. Having interested himself strongly in politics as a democrat, he was elected to congress by his party, and in 1872 ran for governor of his state, but was defeated by John A. Dix. In 1875 he became U. S. senator from the state of New York, his term expiring in 1881. Mr. Kernan was a member of the electoral commission in 1877.

KERNER, ANDR. JUSTINUS, a German poet, one of the leading members of the so-called "Swabian school," was b. at Ludwigsburg, in Würtemberg, Sept. 18, 1786. He studied medicine at Tübingen, and finally settled as a physician at Weinsberg. Here he died Feb. 21, 1862. The most conspicuous qualities of Kerner's poetry are a dreamy fancy and a highly original humor. His chief works are: *Reiseschatten von dem Schattenspieler Lux* (Heidelb. 1811); *Romantische Dichtungen* (Karlsr. 1817); and *Der letzte Blütenstrauss* (Stuttg. and Tüb. 1853). As a physician he displayed quite a morbid interest in the phenomena of animal magnetism, and wrote several books on the subject, one of which, *Die Seherin von Prevorst* (2 vols. Stuttg. 1829; 4th edit. 1846), excited a great interest in America, and is believed to have originated the recent spiritualism.

KERN LAKE, in Kern co., Cal., flows at high water into Kern river, through a channel which at other times is a slough. The lake abounds in fish, and in the tule around it are found game-birds of all kinds, and beaver, otter, raccoons, and other game animals. Its size depends upon the amount of rain.

KERN RIVER, and KERN RIVER SLOUGH. The *river* has its sources in Tulare co., Cal., whence it flows s. and s.w. for a considerable distance, and then divides into two branches, one of which flows into Tulare lake, the other into the tule region around lakes Kern and Buena Vista. Near its sources it abounds in trout. The *slough* is the channel by which at high water Tulare lake discharges its surplus waters n. to San Joaquin river. The lake has no connection with the ocean except at high water.

KEROSENE (Gr. *keros*, wax), the name of a mixture of certain fluid hydrocarbons used for illumination. It has been prepared from bituminous coal and shales, asphaltums and wood, and from rosin, fish-oil, and candle tar; but is now more economically obtained from petroleum. The density of the mixture called kerosene should be about .810 or 43° Baumé, and should not yield inflammable vapors below a temperature of 110° or 120° F. It is, therefore, not explosive under ordinary circumstances, and a lighted match may be plunged into it without igniting it. If, however, it be burned in a metal lamp, and this be heated to 115° or 120° F., gases might be formed in the upper part of the lamp which, on taking off the cap or burner, might cause an explosion. But there are many lighter hydrocarbons in petroleum, and much of the kerosene in market contains them in greater or less proportion. They are cheaper than the heavier oils contained in the kerosene, and there is a temptation among dealers to mix them with this article after it is bought of the manufacturer or wholesale dealer. The extraction of fluid hydrocarbons from bituminous substances, as shales, coals, and asphaltums, commenced in the latter part of the 17th century. In 1694 a patent was granted in England to Martin Eele, Thomas Hancock, and William Portlock for making pitch, tar, and oil out of shales. In 1716 a process was patented by the Bettons of Shrewsbury for making oil from shales overlying the coal beds. They reduced the shales to powder by grinding, and employed the process of destructive distillation. The oil so extracted was used only for medicine, and called British oil. It was more than a century after this before much information was obtained in regard to the distillation of these oils, when baron Reichenbach investigated their properties, and called a mixture of several of the hydrocarbons in

purified coal oils eupione. He discovered a great many new substances, and published an account of them in three different German scientific journals. Many patents were taken out by French and other inventors for methods of distilling these oils from coal and shales, and many conflicting claims to inventions and varying processes have arisen, which need not be discussed here. The discovery of petroleum in large quantities has practically put a stop to the manufacture of oils from shales or coal, and the name kerosene is now scarcely known to the trade, the term petroleum having taken its place either as crude or refined petroleum. See PETROLEUM and PETROLEUM PRODUCTS; also NAPHTHA, *ante*.

KEROWLEE, a native state of Hindustan, 1878 sq.m.; pop. 187,000. On account of the disturbed condition of the territory during the last few years, the reigning prince applied to the British government for aid. This was granted, and order was restored. On the death of the rajah, Nursing Pal, in 1852, the British government recognized his adopted son as his successor, and arranged for the administration of affairs during the minority of the prince. The total revenue of the country is said to be £50,690.

KERR, a co. in the s.w. central part of Texas; drained by the head-waters of Guadalupe river; about 850 sq.m.; pop. '80, 2,168. The surface is hilly and much of it yet in forest. The soil produces excellent pasturage for great numbers of cattle. Valuation of real and personal property, $300,000. Capital, Kerrville.

KERR, MICHAEL C., 1827–76; b. Penn. Having studied law at Louisville university, he entered the practice at New Albany, Ind., and in 1856 was elected to the state assembly. In 1862 he was reporter of the state supreme court. In 1866 he was elected to congress, where he was continued in service by successive re-elections till 1876. In 1875 he was elected speaker of the house by the democratic party, but ill health compelled him to resign, and he died in the following year.

KERR, ORPHEUS C. See NEWELL, ROBERT H.

KER'RY, a maritime co. in the s.w. of Ireland, in the province of Munster, is bounded on the n. by the mouth of the Shannon, and on the w. by the Atlantic ocean. Area, 1,185,917 statute acres, of which 414,614 are arable, 726,775 are uncultivated, and 32,761 are under water. In 1877 the total acreage under crops was 165,389, the half of which was in meadows and pasture, the rest chiefly in oats and potatoes. The county is 60 m. in length from n. to s., and 58 m. broad. Its coast-line is about 220 m. in length, fringed with islands, of which the chief are Valentia, the Blasquets, and the Skelligs, and is deeply indented by Kenmare, Dingle, and Tralee bays. Between these bays are two peninsulas, occupied by branches of the mountain system, which, stretching westward from the county of Waterford, traverses the whole of the s. of Ireland. The principal group is that of Macgillicuddy's Reeks, the chief summit of which, Carran Tual, 3,414 ft., is the highest in Ireland. The largest rivers are the Laune, the Maine, and the Cashen. The county contains numerous lakes, some of them, especially those known as the lakes of Killarney (q.v.), of exquisite beauty. The climate is mild, but moist, especially on the coast. The soil rests on slate and sandstone, with limestone; consists of a rich loam in the central districts, and is productive in grain-crops and in pasture. The manufactures are inconsiderable; oats and butter are the chief exports. The fisheries on the coast are extensive and profitable; they employ nearly 3,000 men and boys. Kerry returns twc members to the house of commons. Pop. in '81, 201,039.

KERSEY, or KERSEYMERE, a variety of woolen cloth, differing from ordinary *broadcloth* by being woven as a *twill*. See TWILL. It is easily distinguished from the common cloth by the diagonal ribbed appearance of its under side, where the nap, not being raised, admits of its structure being seen.

KERSHAW, a co. in n. South Carolina; 700 sq.m.; pop. '80, 21,538. It is traversed by the Wateree river, and by the Camden branch of the South Carolina railroad. Auriferous quartz is found here. The surface is diversified, much of it being woodland. The chief productions are cotton and corn.

KERSHAW, J. B., b. S. C. In the war of the rebellion he commanded a regiment of South Carolina volunteers, raised principally by himself, and was engaged in the first battle of Bull Run, July, 1861. Through the Virginia campaign of 1862 he commanded a brigade which went into action at the second battle of Bull Run; he engaged in the capture of Harper's Ferry, Sept. 15, 1862, and two days later in the battle of Antietam. His command held the strong position of Marye's Heights at the battle of Fredericksburg, so disastrous to the union forces, and was prominent at Chancellorsville and at Gettysburg. With Longstreet's corps he was transferred to the west, and was in the battle of Chickamauga and the siege of Knoxville. As maj.gen. in 1864 he returned to Virginia, and commanded a division in the campaign of Lee's army, which ended at Appomattox Court-house. Since the war he has been one of the political leaders in his native state.

KERTCH, previous to 1855, the most important port of the Crimea, with the largest trade in the export of corn, is situated on the eastern shore of the peninsula, on the strait of Kaffa or Yenikale. The town has a distinctively eastern air; and the appearance of the houses is greatly enhanced by the pillars and balconies with which they are

furnished. The streets, like those of Constantinople, are haunted by troops of homeless dogs. Kertch, the ancient *Panticapæum* or *Bosporus*, was the capital of ancient Taurica. Previous to 1475 it belonged to the Genoese; subsequently, it came into the hands of the Turks; and finally, in 1774, it was acquired by the Russians. On May 25, 1855, it was taken by the allies during the Crimean war, on which occasion the catacombs, a very valuable collection of antiquities connected with early Greek times, was ruthlessly plundered by the soldiery. Pop. '80, 22,449.

KESHUB CHUNDER SEN. See SEN, KESHUB CHUNDER.

KES'TREL, or WINDHOVER, *Falco tinnunculus*, a small species of falcon, and one of the most common of the British *falconidæ*. It is rather larger than the merlin, its whole length being from 13 to 15 inches. It may be at once recognized by its peculiar habit of hovering or sustaining itself in the same place in the air by a rapid motion of its wings, always with its head to the wind, evidently looking for prey on the surface of the ground. Its prey consists in great part of mice; and although of course included by game-keepers in the large category of "vermin," and destroyed on every opportunity, it deserves the most careful protection by farmers, as a check to the excessive multiplication of mice. It more rarely captures small birds, and does not disdain cockchafers and other insects. It is a very widely distributed bird. The male and female differ considerably in color; ash-gray prevailing more in the former, and rusty brown in the latter.

KESWICK, a market t. of England, in the co. of Cumberland, is situated in a charming district on the Greta, at the northern extremity of Derwentwater, 22 m. s.s.w. of Carlisle. Manufactures of coarse woolen cloth and blankets are carried on here. In the vicinity, at Borrowdale, black-lead mines are worked; and Keswick is well known for the black-lead pencils here manufactured. Pop. '81, 3,219.

KESZTHE'LY, a market t. of Hungary, in the co. of Szalad, is situated on the western shore of lake Balaton, 96 m. s. of Presburg. The breeding of horses is carried on, and there is a good trade in corn. Pop. '80, 5,387.

KETCH, a broad, strongly-built vessel of two masts—viz., the main and mizzen. It is now almost obsolete, but formerly was the favorite form for state yachts, and still more recently was the prevailing mortar-boat. In this latter capacity it was called a bomb-ketch.

KETCHAM, JOHN H. See page 890.

KET'CHO, or KESHO. See CACHAO.

KETCHUM, WILLIAM SCOTT, 1813–71; b. Conn.; graduated at West Point in 1834, and served in Florida, Texas, on the plains, in Kansas, Utah, and California. He was brevetted brig.gen. and maj.gen. for meritorious services during the rebellion and in the war department. Retired in 1870, and died by poison in Baltimore in the following year.

KET'CHUP, or CATSUP, a name common to several esteemed kinds of sauce, much used with meat, fish, toasted cheese, etc.—MUSHROOM KETCHUP is made from the common mushroom (*agaricus campestris*), by breaking it into small pieces, and mixing it with salt—which so acts upon it as to reduce the whole mass to an almost liquid state—straining, and boiling down to about half the quantity. Spices of different kinds are added, for which there are many receipts, and sometimes wine. Mushroom ketchup must be kept in tightly corked bottles.—WALNUT KETCHUP is made from unripe walnuts, before the shell has hardened. They are beaten to a pulp, and the juice separated by straining. Salt and vinegar are added, also spices variously, and after considerable boiling down, the ketchup is bottled, and may be kept for years.—TOMATO KETCHUP is made in a similar manner from tomatoes, but is not strained. These are the three most esteemed kinds.

KE'TONES, or ACETONES, organic substances or bodies which in general terms may be defined as composed of acid and alcohol radicals. See RADICAL. Chancel proposed the hypothesis that they are formed on a nuclear molecule of carbonic oxide, or carbonyle, CO, and Wanklyn's researches have demonstrated its correctness. Dimethyle ketone, or *acetone*, may be taken as the type. It is composed of carbonic oxide, as the acid radical, and two monatomic alcohol radicals, and in general it may be said that ketones contain the group CO associated with two monatomic alcohol radicals, which may be the same or different. Thus, ethyl-methyl ketone is CO,CH_3,C_2H_5 or C_4H_8O. The mode of formation of the ketone may be explained by regarding it as derived from an aldehyde by the substitution of an additional alcohol radical in place of the hydrogen atom attached to the group CO. Thus, acetic aldehyde C_2H_4O, which may be written CH_3,CO,H, by substitution of the radical CH_3 for the single atom H, becomes CH_3,CO,CH_3, or $CO.2CH$, as it is more commonly written, or $CO(CH_3)_2$, or C_3H_6O. The only ketones which have been carefully studied are those which contain the alcohol radicals $C_nH_{2n}+$; and which are analogous to the aldehydes $C_nH_{2n}O$, and the fatty acids $C_nH_{2n}O_2$. The ketones of this group, containing two equivalents of the same alcohol radical, are produced: 1. By the action of carbonic oxide on ethyde of sodium and its homologues; 2. By the action of zinc-methyl and its homologues on the acid chlorides; 3. By the oxidation of the secondary alcohols; 4. By the dry distillation of calcium salts of the fatty acids. The ketones formed in this manner from the successive members of

the fatty acid series, of which acetic acid is one, differ from one another by twice the radical CH_2; thus, the salt containing

Acetic acid	$C_2H_4O_2$	yields	Acetone	C_3H_6O
Proprionic acid	$C_3H_6O_2$	"	Proprione	$C_5H_{10}O$
Butyric acid	$C_4H_8O_2$	"	Butyrone	$C_7H_{14}O$
Valeric acid	$C_5H_{10}O_2$	"	Valerone	$C_9H_{18}O$

There are intermediate ketones obtained from different alcohol radicals. Thus ethyl-methyl ketone C_4H_8O is intermediate between acetone and proprione. The ketones which contain two different alcohol radicals are obtained by the second process enumerated above, that is, by the action of carbonic oxide upon ethyde of sodium, or by distilling a mixture of calcium salts of two different fatty acids. Ketones in general are also formed by the gradual oxidation of the lactic acid series, and by the dry distillation of wood, sugar, and other carbon compounds.

Every ketone is isomeric with an aldehyde belonging to the same series; thus, acetone is isomeric with proprionic aldehyde C_3H_6O, and formic acetone is identical with formic aldehyde, COH_2. These bodies are generally volatile liquids, insoluble in water. Those in which the group CO is associated with a methyl group resemble the aldehydes in forming crystalline compounds with alkaline bisulphites, from which the ketone may be obtained by distillation with an alkali, which abstracts the second equivalent of sulphurous acid. In regard to acetone, the typical and most common of the ketones, it is best prepared by the dry distillation of acetate of calcium or acetate of lead. The crude distillate is then saturated with carbonate of potash and rectified in a water bath from chloride of calcium. When pure, acetone is a colorless limpid liquid having a peculiar, agreeable odor and a biting taste somewhat like that of peppermint. Density, 0.792; boiling point, 131.9°F. It is inflammable, burning with a bright flame.

KETSKEMET, a t. of Hungary, co. of Pesth, 50 m. s.e. of Buda; pop. 41,539. It has various institutions of learning, including a normal school and a school of design; also churches of various denominations; gymnasia, an orphan asylum, and a hospital. The principal industries are the manufacture of wine, soap, the tanning of leather, and breeding live-stock. The town is irregularly built in the midst of a level country.

KET'S REBELLION, an outbreak which took place in England, in 1549, under the leadership of William Ket, a tanner, living in Wymondham, Norfolk. He is said to have had 20,000 followers; but the rising was suppressed by the earl of Warwick, after an engagement in which more than 2,000 of the insurgents were killed. The leader, Ket, with others, suffered death on the gallows.

KETTELER, Wilhelm Emanuel von, 1811–77; b. Westphalia; studied law and was attached to the civil service of Münster, but entered upon the study of theology, and was ordained a priest in 1844. In 1850 he was made bishop of Metz, and became a prominent leader in the ultramontane party.

KET'TERING, a market t. of England, in the co. of Northampton, is situated 13 m. n.n.e. of the town of that name. The parish church is large and handsome, with a tower, dating from about 1450. It has a town hall and corn exchange. The free school has an endowment of £155 a year. Boot and shoe making is the staple; silk-weaving, plush, and wool-combing also carried on. Pop. '81, 11,093.

KET'TLE-DRUM, a drum formed by stretching vellum over the circular edge of a hemispherical vessel of brass or copper. This instrument, which gives forth a sharp, ringing sound, is used by regiments of cavalry and horse-artillery in lieu of the ordinary cylindrical drum, which would, from its shape, be inconvenient on horseback.

KETTLE-DRUM, as applied to a social gathering, originated in the British army in India. It sometimes happened in the emergencies of camp life that in an entertainment given by officers and their wives there was a lack of requisite furniture, and the heads of kettle-drums were made to serve in place of tables to hold the cups of tea. So by metonymy the article used gave name to the occasion on which it was used. The name came to mean an informal party, and specifically an afternoon party in which elaborate dress and costly viands gave place to every-day attire for ladies and business suits for gentlemen, with very simple side-table refreshments. This kind of visit was introduced into this country at a time of general financial depression by some who wished to meet their friends socially, yet could not, as before, dress expensively and entertain sumptuously.

KEU'PER, the upper division of the triassic period, consisting in the typical German series of a thickness of more than 1000 ft. of (1) various colored sandstones; (2) marls, with gypsum and dolomite; and (3) a series of carbonaceous slate-clay, with gray sandstones and small irregular beds of impure earthy coal. In Britain, it consists of (1) an extensive series of red marls, with large deposits of rock-salt and gypsum; and (2) white and brown sandstones with beds of red marl. The whole reaches a maximum thickness of 1300 feet. The keuper occupies a large portion of the valleys of the Ouse and the Trent, and is extensively developed in Worcester, Stafford, and Cheshire, where beds of salt, often as much as 80 or 100 ft. in thickness, occur. The keuper does not abound in fossils. The contained organisms differ from those of the permian and older periods;

they have the general appearance of the fossils of the lias and oolite. The plants consist of ferns, equisetum-looking plants, cycads, and conifers. The character of the rocks, and the quantity of oxide of iron, which seems to have been injurious to life, account for the paucity of fossils. The strata are chiefly of interest to the paleontologist, because of the numerous footprints they contain (see ICHNOLOGY), and the remains of the reptiles which produced them, as well as because in them are also found the only observed fragments—the teeth—of the oldest mammal yet known. See MICROLESTES.

KEW, a small village in Surrey, on the right bank of the Thames, and six miles w. of Hyde Park corner. On the opposite side of the river is Brentford, with which Kew is connected by a bridge. The most interesting object at Kew is the royal botanic gardens, containing a large and choice collection of plants, native and exotic, which have been arranged with great skill and care by sir W. J. Hooker. The hot-houses and conservatories are very numerous. There are also a *palm-house,* 362 ft. by 100, and 60 ft. high; a *temperate house,* of the same height, occupying three-fourths of an acre; and a *museum.* The gardens extend over about 75 acres, and the pleasure-grounds connected with them to 240 acres. The botanic gardens were commenced by the mother of George III., but owe much of their celebrity to the able management of sir W. J. Hooker (q.v.). Since 1840 they have been open to the public in the afternoons, Sundays not excepted. There is also an observatory, which, however, is used chiefly as a meteorological station.

KEWA'NEE, a village in Henry co., Ill.; on the Chicago, Burlington, and Quincy railroad; 132 miles from Chicago; pop. 2,407. There are mines of bituminous coal in the neighborhood, and the place has several thriving manufactories.

KEWAU'NEE, a village in Wisconsin, at the mouth of the river of the same name, and about 27 miles e. of the town of Green Bay; pop. '80, 1,050. It is the center of a considerable lumber industry.

KEWEE'NAW, a co. in n. Michigan, consisting of the large tract of country that begins at the Montreal river and projects into lake Superior; called Keweenaw point, from an Indian word signifying, *the canoe is carried back;* also of the island of Isle Royal, with a few smaller islands; area, 540 sq.m.; pop. '70, 4,205, of whom 2,059 were Americans, and 5 were Indians; in '80, 4,270. It is the center of the copper-mining interest. This mining district was discovered by Jesuit missionaries in 1659; in 1845 was brought into public notice through operations on the north shore; and, with the adjacent counties, is known as the "copper-region." The soil is unproductive, except in mineral wealth, and the yield from the copper mines in 1882 was 5,462,648 pounds. There are 6 mines, 6 quartz-mills, and a manufactory of explosive compounds. Co. seat, Eagle River. Like other portions of the state which are washed by lake Superior, Keweenaw has but two seasons—summer and winter; and the beaver, the partridge, and the owl attain their perfection in fur and plumage. The inhabitants engage to some extent in fishing, taking the fish with trap-nets, which are made in Massachusetts. The fish are salted and sent to the territories. Lake Superior white-fish, famous for their size, are packed in ice and sent south.

KEW-KIANG', or KIW-KIANG (Chinese, Nine Rivers), a considerable town of China, in Kiang-si; 227 m. s.w. of Nanking; at the northern boundary of Poyang lake, on the banks of the Yangtze river; the most convenient outlet for the green-tea district. This province is notable for the Taeping rebellion, which had its rise in an outbreak in the province of Kiang-si in 1850. It assumed such formidable proportions, as to obstruct all efforts for the extension of navigation and the establishment of commercial relations with foreign countries; until, in 1861, after a treaty obtained by lord Elgin, an expedition, with a squadron under command of sir James Hope, determining to open two of the principal cities—Hukon and Kew-Kiang—to foreign trade, took possession of those cities and installed consuls in them, and left a gun-boat in each port to protect British subjects. Thus was opened to the world the great center of the tea traffic. Ning Chow congou tea is produced in the n.w. of the province of Kiang-si; but the finest of this kind is grown at Wuning, a place s.w. of the city of Kew-Kiang, the latter city being the chief market for teas of this kind. The population is estimated at over 1,000,000. Severe famines and inundations from the overflow of the Yangtze in successive years drove many fugitives to the town for shelter, and the missionary chapels were at the mercy of Mohammedan fanatics until they were overcome by the aid of vessels-of-war. In the rear of the British settlement, which fronts the river, are the remains of the Chinese town and the monument of a general who fell during the siege, which was erected to his memory by the emperor. This port controls the carrying-trade on the lake and the river; and the shipping in 1871 comprised 320 American and 92 English steamers; 65 English and 23 American sailing-vessels. The port of Kew-Kiang is subsidiary to Shanghai, and at certain seasons of the year navigation is impeded by low water and sand-bars, necessitating the transfer of the cargoes to lighters at Hukon, 16 miles below Kew-Kiang, at the mouth of the lake. The value of the exportations from Kew-Kiang has amounted to £25,000,000 in one year.

KEY, a common heraldic bearing in the insignia of sees and religious houses, particularly such as are under the patronage of St. Peter. Two keys in saltire are frequent, and keys are sometimes *interlaced* or linked together at the *bows*—i.e., rings. Keys

indorsed are placed side by side, the wards away from each other. In secular heraldry, keys sometimes denote office in the state.

KEY, a musical term synonymous with *scale*, from *scala*, a stair. The diatonic scale, as produced by nature, is a certain succession of tones and semitones, ascending from any sound taken as a basis to the octave of that sound, the semitones of which will be found to lie between the 3d and 4th, and between the 7th and 8th degrees, ascending from the basis. In rendering this succession of sounds available for musical purposes by our artificial method of notation, the sounds have, so to speak, been fixed at a certain recognized pitch. Any of the sounds of the natural scale may be taken as a note to form the basis of a new scale, observing always the due succession of the tones and semitones. The note forming the basis is denominated the key-note of the scale, and such scale is said to be in the key of that note. As in our notation each whole tone can be artificially divided into two semitones (see CHROMATIC SCALE), it follows that, with the already existing diatonic semitones, there are 12 equal semitones between a key-note and its octave; and as each of these semitones may be taken as a new key-note, there are therefore twelve keys major, and the same number minor, all differing in pitch. In written notation the scale of the note named C has been assumed as the natural key, the notes forming that scale being held to fall naturally into the requisite succession of tones and semitones. It follows that if any other note be taken as a key-note, one or more or all of the notes of the so-called natural scale must be altered, by being either sharpened or flattened, to bring the scale of the new key into the due succession of tones and semitones. Such alteration is indicated by the marks of sharps or flats placed at the beginning of the staff, and is termed the *signature* of the key. In the minor mode, the key of A minor stands exactly in the same relation to the other minor keys as the key of C does to the other major keys, A being the key-note on which the natural minor scale is found. All other keys have sharps or flats, in greater or less number as they are distant from the natural key of C major or A minor, reckoning by perfect fifths, ascending or descending; thus, the key of G major, which is a perfect fifth above C, has one sharp for its signature—viz., F sharp; the key of D, which is two fifths above C, has two sharps—viz., F sharp and C sharp; and so on to the key of F sharp, adding a sharp for every ascending fifth. The keys with flats are found exactly in the reverse order—viz., by descending fifths; thus, the key of F, a perfect fifth below C, has one flat—viz., B flat; the key of B flat has two flats—viz., B flat and E flat; and so on to the key of G flat with six flats, which in practice is regarded as the same as the key of F sharp with six sharps. The number of flats or sharps is in some cases, for a harmonical purpose, extended still further; such as the key of C sharp with seven sharps, which is the same as D flat with five flats; or the key of G sharp with eight sharps, which is the same as A flat, with four flats. The unnecessary increasing of either sharps or flats only increases the difficulty of reading the music. The term key is often loosely used in the sense of *mode*, and we frequently hear of the major or minor *key*. Much confusion has arisen from this.

KEY, DAVID M. See page 890.

KEY, FRANCIS SCOTT, 1779–1843; b. Md.; completed the regular course of study at St. John's college, Annapolis, and then turned his attention to the study of law, which he subsequently adopted as a profession. He commenced practice in Frederick City, Md., where he attained eminence as a jurist, and held the office of district attorney of the district of Columbia for several consecutive terms. He was intimately associated with chief-justice Taney, having married his sister. Detained against his will, he was an indignant spectator from the deck of a British man-of-war of the memorable attack on fort McHenry which inspired that enduring example of heroic verse, *The Star Spangled Banner*. On this composition rests his literary fame, though a volume of his poems was published in 1857. In 1874 James Lick, of San Francisco, subscribed $150,000 in aid of a fund to be used in the erection of a monument in that city, to his memory.

KEY, THOMAS HEWITT, 1799–1875; b. England. Having graduated in 1821 from Trinity college, Cambridge, and studied medicine at Grey's hospital, London, he was called in 1824 to fill the chair of mathematics in the university of Virginia, an institution then in its infancy. Ill health compelled his return to his native land in 1827. In 1828, when the university of London was founded, he accepted the professorship of Latin, and held it until 1841. He filled other professorships with honor, and at the time of his death the preparatory school connected with that university was under his especial control. As a philologist, he produced numerous pamphlets containing essays and reviews, and a controversial argument on Donaldson's Varronianus. The *Penny Cyclopedia* and the *Journal of Education* advantageously employed his pen, and he published a Latin grammar (1843–46); *Philological Essays* (1868); and *Language, its Origin and Development* (1874). His best energies were given to the construction of a Latin-English lexicon, which is considered his most valuable production.

KEY, THOMAS MARSHALL, 1818–69; b. Ky.; graduated at Yale college, 1838, and devoted himself to the study of law. Removing to Cincinnati, Ohio, he was admitted to the bar of that state, and soon distinguished himself as an able and eloquent lawyer. He was a member of the state senate during several sessions. He is chiefly to be remembered for having been the author of the first bill enacted by congress for the emancipa-

tion of slaves and that for the emancipation of the slaves in the district of Columbia. During the rebellion he was on the staff of gen. McClellan.

KEYA PAHA : a co. in Neb., formed, 1883, from part of Brown co.

KEY-BOARD. See FINGER-BOARD, *ante.*

KEYES, ERASMUS DARWIN, b. Mass., 1811; graduated at West Point in 1832, and from 1844 to 1849 was instructor of artillery and cavalry in that institution. In 1856–58 he distinguished himself in the movements against the Puget sound and Snake river (Wash. terr.) Indians. He was active during the war of the rebellion, commanding a brigade at the first battle of Bull Run, and the 4th corps of the army of the Potomac in 1862. He was made maj.gen. of volunteers for gallant conduct during the Peninsula campaign, and brev. brig.gen. U. S. A., after Fair Oaks. Resigned from the army May 6, 1864.

KEY ISLANDS lie to the s. of New Guinea, between 5° 12′ to 6° 4′ s. lat., and 132° 40′ to 133° 18′ e. long. They consist of Great Key, Little Key, Key Watela, and a number of small islands. In 1853 two new islets appeared in connection with earthquakes which occurred on Nov. 26.

KEY-NOTE. See KEY, *ante.*

KEYPORT, a t. in Monmouth co., N. J., on Raritan bay, 23 m. from New York; terminus of the Freehold and New York railroad; pop. 3,000. It has a considerable trade and some ship-building, and is largely interested in the oyster busines.

KEYS, HOUSE OF. See MAN, ISLE OF, *ante.*

KEYS, POWER OF THE (*Potestas Clavium*), in Roman Catholic theology, properly signifies the supreme authority in the church, which Catholics believe to be vested in the pope, as successor to Peter. The phrase is derived from the metaphor addressed by our Lord to Peter in Matt. xvi. 19, and which Catholic interpreters, relying on the analogous use of the phrase in Isaiah xxii. 22, Apoc. iii. 7, and again i. 18, and also in classical writers, understand as implying the supreme power in the church. The power of the keys is divided by Catholics into two branches—that of order, which, though possessed by all bishops and priests, is believed to belong specially and primarily to the pope; and of jurisdiction, which chiefly regards the supreme government of the church, and embraces the power of enacting laws and dispensing in them, and of directing and governing not only the Christian flock, but also its pastors in their several spheres. The jurisdiction of the keys is exercised in a more limited field, and in a subordinate way, by patriarchs, primates, archbishops, bishops, and other dignitaries; but that, according to the Roman theory, it has its source, as well as its chief seat, in the pope, is implied in the distinctive use of the emblem of the keys as a symbol of papal jurisdiction. The metaphor of the keys was frequently appealed to in the debates of the late Vatican council on the papal privileges. The phrase is also applied to the sacrament of penance, to designate the power of remitting or retaining sin, and with the same distinction of order and jurisdiction, of which the former is imparted to every priest by his ordination, while the latter is only communicated by an express act of the bishop or other superior.

Protestants in general regard the power of the keys as equally intrusted to the whole ministry of the church of Christ, and as including *doctrine* and *discipline.* They admit the argument from the use of the key in Scripture as a symbol of authority; but refuse to acknowledge any limitation of that authority inconsistent with their views of Christian doctrine and of the relation of the ministry to the whole church of Christ, and of Peter to the rest of the apostles.

KEYS, POWER OF THE (*ante*), according to the general Protestant doctrine, is simply declarative. When Christ said to Peter, to all the apostles, and to his disciples generally, "Whosesoever sins ye remit, they are remitted unto them; and whosesoever sins ye retain, they are retained," he assumed that they would act in his name, and according to the conditions which he prescribed. He had made known to them the terms on which sins were to be remitted, and when he sent them forth it was to preach "repentance and remission of sins in his name." Therefore their power to remit sins was a power to declare that they who repented and believed had their sins forgiven as the act of God, through Christ. This is what Peter did declare on the day of Pentecost, when, in answer to the anxious multitude, he said, 'Repent, and be baptized, every one of you, in the name of Jesus Christ, for the remission of sins, and ye shall receive the gift of the Holy Ghost." This was the way in which he "opened the kingdom of heaven" to Jews. When sent to Cornelius he said, "To Jesus bear all the prophets witness that, through his name, whosoever believeth in him shall receive remission of sins." This was the way in which he "opened the kingdom of heaven" to Gentiles. Even to Simon Magus he said, "Repent of thy wickedness, and pray God if, perhaps, the thought of thy heart may be forgiven thee." All that is recorded of Peter's preaching and action shows that he professed to exercise only declarative power in the name of Christ. Paul and the rest of the apostles pursued a similar course. This being the way in which they exercised the power of the keys, all different or higher claims, up to the pope's assertion of power over all the church and over two worlds, are, in the judgment of Protestants, assumptions, contrary to Scripture, disproved by history, and reached by successive stages through many centuries.

KEYS, QUEEN'S. In Scotch law, when a messenger or bailiff executes a caption or warrant under an extract decree, a writ in the former case, or in the latter, that part of the warrant which authorizes him to break open the outer door of the house of the debtor, is called the queen's keys, or letters of open doors. English courts have no power to give a bailiff the right to break open an outer door in executing writs of execution for debt; but this restriction does not apply in the case of criminal warrants. See HOUSE, IMPRISONMENT.

KEY WEST, the name of an island 7 m. long, 1 to 2 m. wide, which forms a part of Monroe co., Florida; pop. '84, about 9,000. A lighthouse on the s.w. point and another on the n.w. show fixed lights, and are, respectively, 72 and 40 ft. above the water. The soil of the island, whose elevation above the sea is about 11 ft., is composed of coral, reduced to a powder by the action of the elements and otherwise, and a small proportion of decayed vegetable matter. There are no springs, the rainfall or artificial means being the only resource of the inhabitants for the supply of water. Yet there is a luxuriant growth of the wild chapparal, of cactus, and other native vegetation, while tropical trees and flowers flourish, and cocoa-nuts, bananas, guavas, pineapples, and oranges are cultivated freely. The Florida reef is a peculiarly dangerous spot to navigators, and some 250 men are employed as wreckers, who produce a revenue to the island of about $250,000 a year. There are charming drives on the island, and the fishing and boating are excellent. Fort Taylor, the chief defense of the port, built on an artificial island in the harbor, mounts about 200 guns.

KEY WEST, a city of Florida, and a naval station of the United States, is situated on the island of Key West (Sp. *Cayo Hueso,* Bone Key), the most westerly of the group of Florida Keys, 60 m. s.w. of cape Sable. It is a coral island, 6 m. long, 2 wide, and nowhere more than 15 ft. above the level of the sea. It has gardens of tropical fruits, and an artificial salt-lake of 350 acres. There are extensive fortifications, a good harbor, two lighthouses and a light-ship, several churches, a marine hospital and barracks. The city is beautiful, with ornamental cottages and gardens, and is inhabited by army and naval officers, traders, wreckers, divers, and invalids. The exports are salt, turtle, and sponges; but the frequent wrecks among these islands afford the most profitable business, which employs 50 vessels, manned chiefly by Conchs, or natives of the Bahama islands, and their descendants. The climate is delightful, the temperature being from 50° to 90° F., with perpetual breezes, but there are also violent hurricanes. Pop. '80, 9,890.

KEY WEST (*ante*) is a city of considerable importance, and has increased its population (stated formerly at 5,000) within a few years, through extensive immigration from the Bahamas and the West Indies. It contains 7 churches, a number of public and private schools, a convent, and a hotel. It is, next to Jacksonville, the largest city in Florida. The manufacture of cigars is a leading industry, employing some 800 hands, chiefly Cubans, who make about 25,000,000 cigars annually. Key West is reached by the Mallory line of steamers for New Orleans, and the New York and Galveston line, both sending vessels from New York every Saturday. There is also a semi-monthly line from Baltimore. It is reached by rail from New York, connecting with a steamer at Cedar Keys.

KHABOUR, a river in Asiatic Turkey, one of the tributaries of the Euphrates, into which it empties at Kerkesich, after a course of nearly 200 miles. It was on this river that the captive Israelites were settled, and it is mentioned in the cuneiform inscriptions.

KHAFALOUN', or KHAPALU, a t. of western or little Thibet, in the territory of Gholab Singh, on the Shayook, a short distance above its junction with the Indus, 110 m. n.e. of Serinagur. Pop. 12,000.

KHALDUN', IBN, or WALY EDDIN ABU ZEID ABDALRAHMAN, 1332–1406; b. at Tunis, Africa. After studying for some years in Granada he entered the service of the sovereign of Tunis, and subsequently that of the sultan of Fez. In 1382 he made the pilgrimage to Mecca, was afterwards employed as an instructor in several of the colleges of Cairo, Egypt, where he was appointed chief cadi in 1384 and again in 1400. In the latter year or near that time, he was sent ambassador to Damascus. He died in Cairo. Among his works was a *History of the Arabs, the Persians, the Berbers, and the Nations among whom they have lived*—now an authority in oriental annals.

KHALED, surnamed the "Sword of God," 582–642; b. Arabia; a distinguished Moslem warrior of the 7th century. He fought against Mohammed in the battle of Ohud in 623; was converted to Islam in 629, and in the same year saved the Moslem army at the battle of Muta, earning for himself the surname above mentioned. He afterwards invaded Persia, seized Bozrah, laid siege to Damascus, defeated the Roman generals in the time of the emperor Heraclius, and captured Aleppo in 638. Died at Emesa.

KHALKAS', the northern part of Mongolia, on the Siberian frontier. It belongs to the high-priest of Buddha, who, with the Chinese governor of the province, resides in the capital, Urga or Oergo. The Khalkas Mongols came under the dominion of China in 1688, when they voluntarily submitted, to avoid total destruction at the hands of the Kalmucks, with whom they were carrying on an unsuccessful war. Khalkas was the birthplace of Genghis Khan, who was originally the khan or chief of a horde of shepherds numbering about 40,000 families.

KHAN, a title of Mongolian or Tartar sovereigns and lords. A *khanate* is a principality. *Khagan* means "khan of khans," but has seldom been applied. The word khan is probably of the same origin as king (q.v.).

KHANDESH'. See CANDEISH, *ante.*

KHANG-HI, or KANG-HI, 1654–1722; second emperor of China under the present Manchu dynasty; succeeded his father, Chun-Chi, as emperor in 1662, under the regency of four mandarins; assumed full power in 1667, when he put one of the regents to death. He studied the Copernican system of astronomy under one of the Jesuit fathers, and caused it to be officially taught in the empire in 1667. He suppressed the revolt led by the prince of Yunnan in 1673, and afterwards annexed Kwang-Tung, Fo-Kien, and Formosa to the empire. In 1689 he concluded a treaty of peace with Russia, annexed Thibet about 1700, and in 1717 authorized the persecution of Christians. He ranks as the greatest of Chinese sovereigns, and through the Jesuit missionaries was well known in Europe. He promoted the publication of important works on the history, language, and literature of the nation; and in 1708 employed the Jesuits to make a topographical survey, which is still an authority in Chinese geography.

KHA'NIA. See CANEA.

KHANPUR', a flourishing commercial t. of north-western Hindustan, on a canal which connects it with the Indus, 400 m. w. of Delhi, in lat. 28° 35′ n., long. 70° 41′ east. It was formerly of much greater importance than it is now, although it still has considerable trade. Pop. 20,000.

KHAZARS, or CHAZARS, one of the tribes of the Finnic or Magyar stock, settled near the mouth of the Volga, in the Caucasus. They had their own sovereigns, and were an independent and powerful tribe. In the 8th c. they became conspicuous by their conversion to Judaism.

KHARASM'. See KHIVA.

KHARGEH. See EL-KHARGEH.

KHARKOV', a government of Little Russia, immediately e. of the government of Poltava. Area, 20,959 sq.m.; pop. '80, 2,027,165. The surface is flat, with chalk hills following the courses of the streams. The soil is a rich and fertile loam, watered chiefly by affluents of the Don. In the n.w. the principal occupations are agriculture and distilling corn-brandy; in the s.e., the breeding of cattle and sheep. The breeding of horses is also carried on. Corn, tobacco, wax, honey, and tallow are largely produced, beet-root sugar is manufactured, and there is an extensive trade in sheep and cattle; but as there is almost no communication with the surrounding governments, the resources of Kharkov may be said to be still in great part undeveloped.

KHARKOV, capital of the government of the same name in European Russia, on the banks of three streams, affluents of the Donetz, in lat. 50° n., long. 36′ 14° e., 916 m. s.s.e. of Petersburg. It had in 1879 a pop. of 101,175, and ranks as one of the chief towns of the Ukraine. Its position between Moscow, Odessa, Kief, Taganrog, and the Caucasus has made it an important market for the exchange of the products of the n. and south. The chief mercantile transactions are effected during the time of the fairs, of which there are four, the principal being the Troitsk fair. The transactions during the fairs amount to about £10,000,000. The staple article of commerce is wool. The town contains 70 factories of various kinds, and manufactured goods are supplied to the surrounding governments. An enormous quantity of wool (value, £1,150,000) is washed here annually. Kharkov has a university attended by 600 students, with a library of 55,000 vols., a veterinary college, and a government model farm.

***KHARTOUM',** the head-quarters of the Egyptian government in Nubia, and chief center of commerce for that region, stands in a sterile district, in lat. 15° 35′ n., long. 32° 30′ e., at the junction of the Blue and White Nile. The houses are built principally of sun-dried bricks. Khartoum is the center of many converging caravan routes, and carries on considerable commerce. The imports consist chiefly of Manchester manufactured goods; the exports are ivory, gum-arabic, ostrich-feathers, bees-wax, and hides. Pop. variously estimated from 20,000 to 50,000. See *Supp.,* page 890.

KHATMANDU', the seat of government in Nepaul, in lat. 27° 42′ n., and long. 85° 18′ east. With narrow and dirty streets, and generally mean houses, it contains about 50,000 inhabitants. The architectural pretensions of the town are confined to its temples, some of them of brick, and the others of wood.

KHAY'A, a genus of trees of the natural order *cedrelaceæ.* The KASSOU-KHAYE of Senegal (*khaya Senegalensis*), one of the most abundant forest-trees in that part of Africa, attains a height of 80 or 100 ft., and is much valued for its timber, which is sometimes called *cailcedra,* and is reddish colored, very hard, durable, and of beautiful grain. The bark is astringent and febrifuge, and contains a peculiar alkaloid.

KHAYYAM, OMAR. See page 890.

KHEDIVE, a title granted in 1867 by the sultan to his tributary the viceroy of Egypt, and since then used by the latter as his official title. The word (pronounced as a dissyllable) is derived from Persian *khidîv,* and means *sovereign.* It is therefore a more dignified title than the former one of *vali,* viceroy.

KHE'DIVE (*ante*), one of the titles of the ruler of Egypt, a tributary prince of the sublime porte, who, since 1867, has exercised absolute power within his own dominions. The first khedive was Ismaïl, sovereign of Nubia, Soudan, Kordofan, and Darfour, son of Ibrahim Pasha (eldest son of Mohammed Ali Pasha, founder of the dynasty), was born in 1830, and succeeded his uncle, Saïd Pasha, in 1863, as fourth viceroy of Egypt. He traveled through the capitals of Europe, informing himself concerning their manners and customs, and these he introduced into his own dominions on his return. He fell under the displeasure of the sultan, through the jealous fears of the latter regarding European ascendency in Egypt, but succeeded in obtaining from him important concessions. By a firman dated May 21, 1866, he gained the right of the succession in the direct masculine line in his branch; by that of June 8, 1867, the title *khedive*, or sovereign, was granted him; and by the firman of Sept. 29, 1872, he obtained the right to increase his army and navy at his pleasure, and to borrow money. Finally, he was conceded, in 1873, the right to conclude treaties of commerce, with the full autonomy of the administration of the country. Yet, despite all this, the sultan retained in his hands the disposition of the government in Egypt, since, in April, 1879, he proposed to the western powers to depose Ismaïl in favor of his uncle, Halim Pasha, the rightful heir. This proposition was not received favorably, though repeated in June, and the sultan was finally induced to issue a firman deposing Ismaïl in favor of his son, prince Mohammed Tevfik. This was on June 26, and the firman abolished that of 1873, and deprived the khedive of the power to conclude treaties with foreign powers, and to maintain a standing army. Ismaïl Pasha accordingly quitting the throne, his son was proclaimed khedive, under the title of Tevfik I.

KHERSON', a government of southern Russia, on the borders of the Black sea, first appearing in history during the 4th c. B.C., when it formed a portion of the kingdom of the Bosphorus. From the 11th c. the right of possession was claimed by the Poles, the Cossacks, and various Tartar tribes, the last being ultimately successful. In the 17th c. Russians commenced to settle in the province, and during the next century their example was followed by a number of Servians. The province, with an area of 28,666 sq.m., is uniformly fertile in the n. and n.w.; in the s. it is sometimes dry and arid, with here and there sandy wastes, which towards Odessa become incrusted with salt. Notwithstanding that three large rivers—the Dnieper, Bug, and Dniester—run through the s. of the province, the want of water is often severely felt, especially in July, when the vegetation is almost completely burned up by the heat. The climate is very changeable, being very hot in summer, and piercingly cold in winter. Destructive ravages by locusts are not uncommon. The population in 1880 was 1,765,302, consisting of Little Russians (natives of the Ukraine), Moldavians, Bulgarians, Greeks, Germans, and Jews, who are chiefly employed in agriculture. The Germans cultivate tobacco and rear silkworms. Much of the arable land, however, is lost from want both of capital and labor. Cattle and sheep breeding are also carried on on a large scale.

KHERSON, or CHERSON, capital of the government of that name in European Russia, lies on the right bank of the Dnieper, near to where it widens out into the estuary of the Liman, and 808 m. s. by w. from Moscow. It was built by Catherine II. in 1778, as a port for the construction of ships of war, but in a very few years was supplanted by Odessa and Nikolaief, both as a dock-yard and a commercial outlet. Only ships of light draught are now built at Kherson, and only such ships can navigate the estuary. Kherson is the center of the coasting and staple trade in timber and other goods floated down the Dnieper and its tributaries, and in Crimean salt. Rope-making, tallow-melting, and wool-washing, are the chief branches of trade, and the products are largely exported. Pop. '67, 45,926. Kherson has a gymnasium, naval school, school for training pilots, and an observatory.

KHI'VA (anc. *Chorasmia*), KHAUREZM, KHARASM, or URGUNGE, a khanate of Turkistan in central Asia, lies between lat. 37° 45′ and 44° 30′ n. and long. 50° 15′ and 63° e., and contains about 25,000 sq.m., the surface being mostly a sandy desert, with many fertile tracts scattered over it. It is bounded on the n. by the Russian territory and sea of Aral, e. by the khanate of Bokhara, s. by Persia, and w. by the Caspian sea. The chief oasis, in which the capital, Khiva, is situated, stretches from the mouth of the Oxus or Amu-Daria for 200 m. along its banks, and is watered by artificial canals supplied from that river, to which it entirely owes its fertility. Its extent is variously estimated at from 2,000 to 4,000 sq.miles. According to a recent estimate (see *Times*, April 28, 1873), the population consists of 260,000 settled and 240,000 nomad inhabitants. There are from 10,000 to 40,000 Persian freedmen or slaves who have been captured in Khorassan by the Turcomans.

Khiva, in ancient times, was nominally subject to the Seleucidæ; subsequently it formed a part of the kingdoms of Bactria, Parthia, Persia, and the caliphate, and became an independent monarchy in 1092 under a Seljuk dynasty. The Khivans, or, as they were then called, the Khaurezmians, after conquering the whole of Persia and Afghanistan were obliged to succumb to the Moguls, under Genghis Khan, in 1221. In 1370 it came into the hands of Timûr. Timûr's descendants were subdued in 1511 by Shahy Beg (called Sheibani Khan by western writers), chief of the Uzbeks, a Turkish tribe, and his successors have ruled over Khiva to our times. Ever since the Russians entered

central Asia, they have complained that the Khivans fostered rebellion among their Kirghis subjects, and plundered their caravans. In 1717 Peter the great endeavored to conquer Khiva, but was defeated, and in 1839 the attempt was renewed by the czar Nicholas, but with no better success. War may be said to have recommenced when new Russian forts, in 1869 and 1871, were founded on the shores of the Caspian. It was not, however, till 1873 that a great effort was made finally to crush Khiva. To diminish the difficulties of crossing the deserts, the Russian force was divided into five columns, each about 3,000 strong, to approach Khiva by different routes. After enduring with admirable fortitude great privations and fatigue, the Russians entered Khiva on June 10. The khan agreed to pay a war indemnity, and to cede to Bokhara the Khivan possessions on the right bank of the Amu-Daria (Oxus). Shortly afterwards, however, these possessions were incorporated with Russian territory, and now Kizil-Kum and the annexed part of Khiva form the Russian government of Amu-Daria, with an area of 39,820 sq.m., and an estimated pop. of 109,600.—KHIVA, the capital of the khanate, is situated in the great oasis. It consists almost entirely of earth huts, not excepting the residence of the khan, the only brick buildings being three mosques, a school, and a caravansary. Pop. about 20,000. See Burnaby's *A Ride to K.*

KHLISTIE, or DANIELITES, a Russian fanatical sect which originated in the first year of the emperor Alexis, A.D. 1645. They call themselves "people of God," "tribe of Israel," "worshipers of the true God," "brothers and sisters." According to their traditions, *God the Father* manifested himself in the person of Daniel Philippon or Phil ippitch. This they hold was his second manifestation in the flesh, and that as Jerusalem and Zion were by the previous manifestation enlightened, so now Russia and Kostroma, the birthplace of Daniel, are by this reappearance blessed with the divine favor. The historical facts are that Daniel Philippon, a peasant of the province of Kostroma, ran away from the Russian army, declared himself the Almighty, and wandering about, taught the people twelve commandments inculcating certain moral duties. They observe some of the practices of the regular church to avoid persecution. They have pictures of their god Daniel Philippon; their Jesus Christ, Ivan Timofegen; their mother of God, saints, prophets, and teachers, whom they adore. They call the church edifices of the orthodox ant-nests, and their priests idolaters and adulterers. Notwithstanding their absurdities, their sect is numerous, and has among its members many of the nobles of the land. After service they partake of an ordinary meal, which is prolonged till late in the evening, and often attended with licentious acts. The sect is known in different regions by different names.

KHODAVENDIGH'IAR, a mountainous and well-watered region in Asiatic Turkey, on the coast of the sea of Marmora; pop. 1,100,000. Its soil is fertile, producing grain and fruit in abundance; manufactures of cotton and silk are among the industries. This country formed a portion of the ancient Bithynia and of Phrygia, and presents as a striking feature of its landscape the Keshish Dagh, which was the Mt. Olympus of the fabulous court of Jupiter, at the foot of which is the capital, Brusa, or Broussa.

KHO'I, a t. of Northern Persia, province of Azerbijan, on the Kotoura, a feeder of the Araxes, 50 m. n.w. of Tabriz, and about 20 m. n. of lake Urumeyah. Pop. 30,000.

KHOJEND' is a t. of Russian Turkistan, on the Sir-Daria, the ancient Jaxartes, about 90 m. n.w. of Khokan. It is the seat of some cotton manufactures and of a considerable transport trade. Pop. estimated at 45,000.

KHOKAN' (originally *Kokand*), once a khanate of Turkistan extending e. of 64° long. over the whole of the upper basin of the Jaxartes or Sir-Daria. But long previous to the commercial treaty in 1868 between Russia and Khokan, the khanate had been confined to an area of some 30,000 sq.m., lying between 70° and 74½° e. long. and between 39° 40′ and 42° n. lat. In summer 1875 a rebellion against the khan, who was already practically a Russian vassal, led to a Russian intervention. After a fierce struggle, the immediate result was the annexation to Russia of all the territory of Khokan lying n. of the Sir-Daria. Now the whole khanate forms the Russian government of Ferghana, a name under which Khokan was famous throughout the east in the middle ages. The area of Ferghana is 28,160 sq.m., and the population, consisting of Kipchaks, Kirghiz, Tajiks, Sarts, and Uzbegs, is estimated at 960,000. Khokan was far from being the richest of the three independent khanates; and the cost of governing a hardy and warlike people is expected to prove a heavy burden on the Russian exchequer. Manufactures of silks and coarse cottons are the chief industrial products. The chief town is Khokan, with about 50,000 inhabitants.

KHOKAN' (*ante*), a city, capital of the khanate of that name, 220 m. from Samarcand; pop. about 50,000. It is the seat of a considerable trade in Russian goods, with numerous bazaars. Native manufactures are silk and woolens, and riding equipments. There are several fine mosques in the city, which is also supplied with public schools.

KHOLMOGO'RY, a t. in the government of Archangel, European Russia, was a place of great note when the White sea trade was in its glory, but since the seat of government has been removed to Archangal Kholmogory has steadily declined, and in 1867 contained only 1577 inhabitants. Peter the great, on his return from his travels, brought

to Kholmogory several specimens of the Dutch breed of cattle, by means of which the natives so improved their own, that the Kholomogory breed is now considered to be the best in Russia.

KHONDISTAN′, a small district in the province of Orissa, India, at the source of the Nerbudda river. The inhabitants, called Khonds or Khoonds, are a wild, uncultivated tribe of the non-Aryan stock, of the coarsest negro type in complexion and features, living upon wild fruits, roots, and game. Human sacrifices formerly prevailed among them, but were suppressed by the persevering efforts of maj.-gen. Campbell, the British agent. The Khonds, on account of their language and customs, are an interesting study for ethnologists.

KHONSAR′, a t. of Persia, in the province of Irak-Ajemi, 80 m. n.w. of Ispahan and on the route from that city to Hamadan. Orchards abound here, and the raising of fruit and weaving are the chief employments of the people. Pop. about 12,000.

KHOOLOOM′, KHULM or TASH-KURGAN, a t. of central Asia, khanate of Koondooz, on the Khooloon river, a tributary of the Oxus. Pop. 10,000. It is on the high road to Balkh and Koondooz in lat. 36° 38′ n., long. 68° east. The houses are of one story, of clay or sunburned brick. The town is surrounded by a wall defended by citadels.

KHORASSAN′ (anc. *Parthia*, *Margiana*, and *Aria*), the largest province of Persia, lies between lat. 31° and 38° 30′ n. and long. 53° and 62° 30′ e.; contains about 210,000 sq.m., of which nearly one-third is a vast salt waste; of the remainder, a large portion consists of plains of shifting sand; and the rest is fertile. The fertile districts are in the n., where the high range of the Elburz crosses the province, throwing out spurs, forming a mountainous district, abounding with fertile and well-watered valleys. Artificial fertilization by means of canals was here carried on to a great extent in ancient times, but the incessant disturbances which have unsettled the district for the last 1000 years have almost put an end to this practice. The chief products of Khorassan are grain, cotton, silk, hemp, tobacco, aromatic and medicinal plants, fruits, wine, salt, gold, silver and precious stones, also camels, horses, and asses. In the more thickly-peopled districts, manufactures of silks, woolens, and camels' and goats' hair fabrics, also of muskets and sword-blades, are carried on to a considerable extent. The chief towns of the province are Meshed, the capital, Nishapûr, Yezd, and Astrabad. The inhabitants are Mohammedans of the Shiah sect.

Khorassan, in ancient times, also included the desert of Khiva or Kharasm and the district now known as the kingdom of Herat; but the first was separated from it by the Seljuks at the commencement of the 11th c., and the latter about 1510, since which period it has been on several occasions seized and held for a short time by the Persians.

Khorassan has been several times separated from the Persian empire, but was finally reunited to it at the commencement of the 16th c. by Ismaïl Sofi, the first Suffavean shah of Persia. See PERSIA.

KHORSABAD′. See NINEVEH.

KHOSRÛ, or KHÛSRÛ I., surnamed NÛSHÎRVAN (the noble soul), and known in Byzantine history as Chosroes I., the greatest monarch of the Sassanian dynasty, was the son of Kobad, king of Persia. Khosrû mounted the throne on his father's death in 531 A.E.; gave shelter to great numbers of those whom Justinian, the Byzantine emperor, persecuted for their religious opinions; in 540 commenced a war of 20 years' duration with the Roman emperor; but though the Persians reaped an abundant harvest of glory, the other results were unimportant. On the accession of Justin II., the Persian ambassadors having been ignominiously abused, and the Greeks having taken possession of Armenia, Khosrû, justly indignant, again declared war in 570, took Dara, the eastern bulwark of the empire, but was terribly defeated at Melitene (577) by Justinian, grandnephew of the emperor of that name; this defeat was, however, counterbalanced by the victorious Greek being in his turn totally routed in Armenia. Khosrû did not live to see the end of the contest, as he died in 579. His government, though very despotic, and occasionally oppressive, was yet marked by a firmness and energy rarely seen among the orientals. Agriculture, commerce, and science were greatly encouraged, ravaged provinces were repeopled from his conquests, and wasted cities rebuilt. His memory was long cherished by the Persians, and many a story of the stern justice of Khosrû is still current among them. Persia, during his reign, stretched from the Red sea to the Indus, and from the Arabian sea far into central Asia. (For a full account of this prince, see sir John Malcolm's *History of Persia*.)—KHOSRÛ II., grandson of the preceding, surnamed Purvîz (the Generous), was raised to the throne in 590, but being immediately deposed by another claimant, was, by the assistance of emperor Maurice, reinstated, and in gratitude surrendered Dara, Nisibis, and a great part of Armenia, to the Romans. In spite, too, of numerous and just grounds of quarrel, he preserved peace with that nation till the murder of his benefactor by Phocas. Khosrû then invaded Mesopotamia in 604, took Dara, and during 17 years inflicted upon the Byzantine empire a series of disasters, the like of which they had never before experienced. Syria was conquered in 611; Palestine in 614; Egypt and Asia Minor in 616; and the last bulwark of the capital, Chalcedon, fell soon after. At this crisis the fortune of war changed sides. See HERACLIUS. Khosrû, driven in turn to the very gates of Ctesiphon, was deposed and mur-

dered by his eldest son, Shiroueh, or Siroes, Feb. 28, 628. It was to the prince that Mohammed sent a letter demanding a recognition of his mission. See MOHAMMED.

KHOTAN′, or ILLITSI, one of the four provinces of Kashgaria, formerly Chinese Toorkistan; the capital, Khotan, in lat. 37° n., long. about 79° e., was anciently a city of great importance, and is still a large place, having manufactories of silk, leather, paper, etc. The inhabitants are mainly Uzbek Tartars.

KHOTIN. See CHOTYN.

KHUR′JA, a t. of British India, in the district of Boolundshuhur, the principal place of the pergunnah of the same name, 54 m. s. of Meerut, about 2 m. w. of the Ganges canal. Pop. '72, 24,584.

KHUZISTAN′ (anc. *Susiana*), a province of Persia, in lat. 30° to 33° 7′ n., and long. 47° 45′ to 51° e., having Fars and the Persian gulf on the s., is divided into two almost equal portions—the one, the n.e., very hilly, the other, the s.w., so level as to be almost a stagnant sea during the rainy season, changing to an arid waste in summer. Khuzistan contains extensive pastoral districts, on which vast herds of cattle are reared, and naturally abounds in alluvial soil fitted for such crops as rice, maize, cotton, sugar-cane, indigo, etc. The silk-worm is also reared in some districts. The chief towns are Shûster, Dizful, and Mohammerah.

KHY′BER PASS, the most practicable of all the openings, four in number, through the Khyber mountains, is the only one by which cannon can be conveyed between the plain of Peshawur, on the right bank of the upper Indus, and the plain of Jelalabad, in northern Afghanistan. It is 30 m. in length, being here and there merely a narrow ravine between almost perpendicular rocks of at least 600 ft. in height. It may be said to have been the key of the adjacent regions in either direction from the days of Alexander the great to the Afghan wars of 1839–42, during which it was twice forced by a British army, in spite of an obstinate defense by the natives. The first fighting in the Afghan war of 1878–80 was in forcing an entrance into this pass, over which, as was stipulated in the conditions of peace, the Anglo-Indian authorities are henceforth to have full control.

KHYERPUR′, a t. of Sinde, stands about 15 m. e. of the Indus. The town was once the residence of the northern Ameers of the country, but is now little better than a collection of filthy mud-hovels. It has only about 15,000 inhabitants.

KI, a word in the Chinese language meaning a grand division of time, employed in relation to periods of 3,000 years, of which 10 are assumed to have preceded the first imperial dynasty B.C. 2,205.

KIABOU′CCA, KIABOOCA, KYABUCA, or AMBOYNA WOOD, a beautifully-mottled wood which is found in our timber-yards in small pieces, very evidently the wens or excrescences formed on the stem of the producing tree, *pterospermum indicum* (natural order *byttneriaceæ*). The color of this wood is yellowish red of different shades, and covered with a most elegant mottled figure in darker shades. It is much used for small ornamental articles, especially snuff-boxes, its scarcity and the small size of the pieces forbidding its employment in the manufacture of larger articles.

KIAH′TA, or KIACHTA, a t. in Siberia, 150 m. s. of lake Baikal, and close to the Chinese frontier, being only separated by a piece of neutral ground 280 yards broad from the Chinese town of Maïmatchin. The pop. in '67 was 4,286. Through this town began the commercial intercourse between Russia and China which had been arranged by the treaties of 1689 and 1727. Since the middle of last century a lively and profitable barter-trade has been carried on both in Kiahta and in Maïmatchin; but it was not till the end of the century that the Russians were able to produce on their side any articles besides furs, but since then cloth and cotton goods, first of English or French, and later of Russian manufacture, have in part been substituted. Formerly the export to China of coins and the precious metals was forbidden at Kiahta, but this restriction is now in part removed. The exports from China consist chiefly of tea, of which about 100,000 cwts. finds its way into Russia by this road. This tea is very dear, on account of the enormous distance it has to be brought to Kiahta (more than 3,000 m.), and the Russian import duty, which amounts to from 40 to 70 kopeks. It is generally imported by the Russians at 1s. 9½d. per pound. But it must not be overlooked that the Kiahta tea is the first crop, immensely superior to all that reaches Europe by any other route.

KIANG′-SI, or KIANG′-SEE, a province of China, between lat. 31° and 35° n. and long. 116° and 122° e., bounded by the Yellow sea on the e., and landward by the provinces of Shang-Toon, Ho-Nau, Ngau-Hoei, and Che-Kiang; 44,500 sq.m.; pop. 38,000,000. It is one of the most fertile regions of China. The surface is level, abounding in marshes, lakes, rivers, and canals. It exports more of both silk and rice than any other province in the empire. Hungtsih, the largest lake, is about 200 m. in circumference. The inhabitants are among the most intelligent of the Chinese people. Capital, Nanking.

KICKAPOOS′, a tribe of North American Indians belonging to the comprehensive Algonquin family, formerly inhabited the region about the upper Mississippi, whence they gradually moved down into Illinois, and settled about the Wabash and Rock rivers.

They were hostile to the English during the early settlement of the country, and on the outbreak of the revolution supported the colonists for a time, but at length turned against them, and a state of war continued until 1792, in which gen. Scott took an important part. In 1811 the Kickapoos fought with Tecumseh against gen. Harrison, and on the outbreak of the war with England they assumed the offensive, but were defeated by Zachary Taylor at fort Harrison. Treaties made in 1815–16 ceded a large portion of their lands, and the U. S. government procured their removal and settlement on the Osage river, paying them $2,000 a year for 15 years for their own lands. Here for a few years, there was established a degree of civilization, missionaries of various denominations making every effort to educate and cultivate this troublesome tribe. But the predatory and savage instincts of the Kickapoos soon resumed the ascendency, and their warriors went out killing and horse-stealing, making descents upon Texas and other Mexican states, and at length even turning upon the U. S Indian agents, one of whom they murdered in 1854. They were then removed to a reservation in Atchison co., Kansas. A considerable number of individuals of the tribe eventually settled down on separate holdings, and became farmers and citizens; the remainder went into Mexico, where they lived by raids over the frontier for booty. In 1873 the number of Kickapoos on the Kansas reservation was about 300, about 1000 being in Mexico.

KIDD, William, known as Robert Kidd; b. England about 1650; was a trader out of New York, and in the war between England and France, in the early part of the reign of William III., commanded a commissioned vessel in the West Indies, and was noted for his bravery. In 1695 he was appointed by the earl of Bellomont, governor of the province of New York, to assist in suppressing piracy, and received two commissions from the king, one as a privateer against the French and the other a roving commission to pursue and capture pirates wherever he might find them. He sailed from Plymouth, Eng., April, 1696, in a galley called the *Adventure*, carrying thirty guns and a crew of eighty men. After proceeding to New York he captured a French ship, divided the booty, and increased his crew to 155 men, when he disobeyed his orders to cruise on the American coast by sailing for Madeira, thence to St. Jago, Madagascar, Malabar, and the Red sea. He had not been very successful in capturing vessels, and he now turned pirate and attacked whatever he met that promised booty. He first took some small Moorish vessels, then fought a Portuguese man-of-war, which defeated him, and finally captured a Portuguese ship from Bengal and an Armenian vessel with a rich cargo. At Madagascar he burned his vessel and went on board the Armenian, the *Quedagh Merchant*, afterward purchasing the sloop *Antonio* and sailing in company. By this time he had been proclaimed a pirate by the English, who had dispatched a man-of-war in search of him. Proceeding to New York he coasted from Delaware bay to Block island, corresponding with the earl of Bellomont in the mean time, and finally delivered up to the governor in Boston the treasure which he had acquired by his captures, including 1111 ounces of gold, 2,353 ounces of silver, 57 bags of sugar, 41 bales of goods, and 17 pieces of canvas. On July 6, 1699, Kidd was arrested, the immediate charge against him being that of murder, he having killed a gunner on board the *Adventure* who had become mutinous. He was sent home to England, and in April, 1700, was tried and found guilty of murder and on five separate indictments for piracy. He was condemned and executed. After Kidd's death it became rumored about that he and his crew had buried immense treasures prior to his capture, and the coast from Block island s., and even islands in the Hudson river, have been many times searched for this rumored wealth, of which no portion has yet been discovered.

KIDDER, a co. of n. Dakotah, 1700 sq.m. It is crossed by the Northern Pacific railroad. It was formed '73, and in '80 the pop. was 89.

KIDDER, Daniel Parish, D.D.; b. N. Y., 1815; graduated from Wesleyan university (Conn.) and became a Methodist preacher. From 1837 to 1840 he was a missionary in Brazil; 1844–56 secretary of the Sunday-school union of the Methodist Episcopal church; 1856–71 professor of practical theology at the Garrett biblical institute, Evanston, Ill.; in 1871 he was elected to the same position in Drew theological seminary, Madison, N. J. He has written a number of books of which a popular account of Brazil, the joint production of rev. J. C. Fletcher and himself, with the title *Brazil and the Brazilians*, is the most noteworthy.

KIDDERMINSTER, a well-known manufacturing t. and municipal and parliamentary borough of England, in the county of Worcester, is situated on the Stour, 4 m. above its junction with the Severn. The parish church is a handsome edifice, partly in the decorated and partly in the perpendicular style. Kidderminster is chiefly noteworthy on account of the carpet manufactures which are here carried on. The borough returns a member to the house of commons. Pop. '81, 25,634.

KIDDOO, Joseph B., b. Penn.; rose during the war of the rebellion from a private soldier in the 2d Pennsylania volunteers to be brig.gen. He fought at Yorktown, Williamsburg, Fair Oaks, Malvern Hill, and in other important battles of the armies of the Potomac and the James. He was severely wounded during the siege of Petersburg, Oct., 1864, while in command of the 22d U. S. colored troops, and was brevetted brig.gen. and maj.gen. for gallant conduct. In 1866 he received the appoint-

ment of col. of the 43d U. S. infantry, but, on account of ill-health resulting from his wounds, was retired from the service in Dec., 1870.

KIDNAPPING is not a legal term, but is frequently applied in popular language to the offense of stealing or forcibly carrying off a child or adult. The offense of forcibly carrying off a grown person, in general, now amounts only to an assault or false imprisonment, though formerly punishable with death. Child-stealing, where the child is under 14 years of age, if done with intent to steal any article upon or about the person of the child, or to deprive the parent or guardian of the possession of the child, is in England and Ireland a felony, punishable with penal servitude for not less than three nor more than seven years, or with two years' imprisonment. See also ABDUCTION.

KIDNEY-BEAN, *Phaseolus*, a genus of plants of the natural order *Leguminosæ*, sub-order *Papilionaceæ*, having nine stamens united by the filaments, and one separate stamen, a downy stigma, a two-lipped calyx, and the keel of the corolla with the stamens and style spirally twisted. The species are mostly annual herbaceous plants, natives of the warm parts both of the eastern and western hemispheres. The common kidney-bean (*P. vulgaris*) is the *haricot* of the French. In Britain it is sometimes called *French bean*. In the south of Europe, and as far north as Germany, in the United States, and many other countries, the kidney-bean is a field-crop, and the ripe seeds are an important article of food. Within the tropics it is sown at all seasons; but in countries subject to frost only in spring, after the danger of frost is over. The seeds are used for food in a boiled state. In Britain they are not regularly ripened, except in the most favorable situations in the south. The plant is therefore cultivated chiefly for the sake of the unripe pods, which, when boiled with the young seeds in them, form a well-known and very delicate dish.—The SCARLET RUNNER (*P. multiflorus*) has often been regarded as merely a larger variety of the kidney-bean, with long, twining stem. It is doubtful, however, if they are originally from the same native country, an American origin being assigned to the runner, which is also a perennial—although in the climate of Britain usually destroyed by the winter's frost, and therefore treated as an annual—and has tuberous roots. The roots, in common with those of some other species of *Phaseolus*, are narcotic and dangerous; serious consequences have ensued from the accidental eating of them. The plant is cultivated for the same uses as the kidney-bean, and affords, even in Scotland, a very abundant crop of green pods in the latter part of autumn, although the seed is not sown till about the first of May. It is a very ornamental plant, particularly the common variety with scarlet flowers. It readily covers any trellis or paling, and requires stakes of 6 to 10 ft. in height.—Closely allied to the kidney-bean, if indeed more than varieties, and cultivated for the same uses, are the *Haricot de Soissons* (*P. compressus*), the *Haricot Princesse* (*P. tumidus*), etc. In some parts of India one of the most esteemed kinds of pulse is the MOGG, MOONG, or MUNGO (*P. mungo*); in others, the KALA MOOG, or BLACK GRAM (*P. max*).

KIDNEYS, THE, are two glands having for their office the secretion of the urine. That this office or function is of extreme importance is sufficiently shown by the facts that if, in consequence of disease, it is altogether suspended in the human subject, even for a day or two, death not unfrequently occurs, and that urinary glands corresponding in function to our kidneys are found, not only in all vertebrate animals, but in almost all mollusks, in the arachnidans, in insects, and in myriapods.

The human kidneys are situated in the region of the loins, on each side of the spine, and are imbedded in a layer of fatty tissue. Their form is too well known to require any description. The average length of each kidney is a little more than four inches, and its usual weight is from four to six ounces. The substance of the kidneys is dense, extremely fragile, and of a deep red color. On making a vertical section of the kidney, it is seen to consist of two different substances, which are named, from their position, the external or cortical, and the internal or medullary substance.

The *cortical substance* forms by far the greater part of the gland, and sends numerous prolongations inwards between the pyramids of the medullary substance. It is soft, granular, and contains numerous minute red globular bodies diffused throughout it, which are called, from their discoverer, the Malpighian bodies, and which will be presently noticed more fully. Its substance is made up of the *uriniferous tubes* (which are described in the notice of the medullary portion), capillaries, lymphatics, and nerves, held together by an intermediate parenchymatous substance.

The *medullary substance* consists of pale-reddish conical masses, called the "pyramids of Malpighi." They are usually about twelve in number, but vary from eight to eighteen, and their apices (the *papillæ*) point towards the hollow space (termed the *sinus* or *pelvis*) which occupies the interior of the gland. The medullary structure is firmer than the cortical, and instead of being granular, presents a striated appearance, from its being composed of minute diverging tubes (the uriniferous tubes, or tubes of Bellini), which run in straight lines through this portion of the kidneys, after having run in a highly convoluted course through the cortical portion.

The cavity occupying the interior of the kidneys (the *sinus* or *pelvis*) is lined by mucous membrane, which, through the medium of the ureter, is continuous with that of the bladder, and which extends into the tissue of the kidneys, to line the uriniferous tubes. The mucous membrane forms a cup-like cavity around the termination of each

pyramid, and the cavity, termed the *calyx*, receives the urine from the open terminations of the tubes and conveys it towards the pelvis, from whence it passes down the ureter into the bladder.

Each kidney is supplied with blood by a renal artery, a large trunk which comes off at right angles to the aorta. The blood, after the separation of the various matters which constitute the urine (q.v.), is returned into the venous system by the renal or emulgent vein, which opens into the inferior vena cava.

The nerves are derived from the renal plexus, which is formed by filaments of the solar plexus and the lesser splanchnic nerve. They belong entirely to the ganglionic or sympathetic system.

The Malpighian bodies are found in all vertebrate animals. In mammals, which are the only animals in which there is a division into a cortical and a medullary portion, these bodies are only found in the former. In an injected specimen, they appear to the naked eye as mere colored spots. They are for the most part of a spherical, oval, or flask-like form. Their diameter in man may range from $\frac{1}{80}$th to $\frac{1}{144}$th of an inch, the mean being $\frac{1}{104}$th. A small artery, termed the *afferent vessel*, may be traced into each Malpighian body, while a minute venous radicle, the *efferent vessel*, emerges from it close to the point at which the artery had entered. The Malpighian body itself consists of a rounded bunch or tuft of capillaries, derived from the afferent, and terminating in the efferent vessel, and inclosed in a clear and transparent capsule, lined at its lower part with epithelium, continuous with that of the uriniferous tube which springs from each capsule.

The convoluted portion of the tube which proceeds from, and is continuous with, the Malpighian capsule is composed of a delicate basement membrane in immediate relation externally with an abundant capillary net-work, and lined in its interior by the spheroidal or glandular variety of epithelium. The diameter of its central canal is about $\frac{1}{1000}$th of an inch. The straight portion of the tubes of which the pyramids are composed is lined with epithelium which approaches more nearly to the scaly or tesselated variety, and which seems to serve as a protecting layer, rather than to take part in the function of secretion. The tubes unite with one another to a great degree as they pass through the structure of the pyramids, so that at the base of a pyramid there may be many thousand tubes, while the number of openings at the extremity of a papilla are comparatively few.

It now remains to consider the respective functions of these two essential elements of the kidney (as it exists in the vertebrate animals), viz., the Malpighian bodies and the tubes. From the admirable researches of Mr. Bowman (*Philosophical Transactions*, 1842), and from the labors of subsequent anatomists, it appears that in animals in which the urinary excretion is passed in an almost solid form (as in birds and reptiles), the tufts are small and simple as compared with those of the kidneys of animals which (like man and most mammals) pass the urinary constituents dissolved in a large quantity of water. On these grounds, as well as from the fact that the anatomical arrangement of the tufts is well calculated to favor the escape of water from the blood, Mr. Bowman arrives at the conclusion, that the function of the Malpighian bodies is to furnish the fluid portion (the water) of the urine. The arrangement of the convoluted portion of the tubes, with a capillary net-work on one side of their basement membrane, and secreting epithelial cells on the other, is the exact counterpart of the arrangement in other secreting glands, and there can be no doubt that the functions of the cells in the convoluted portion of the tubes is to separate from the blood the various organic constituents (urea, uric acid, creatinine, etc.) and inorganic salts (chloride of sodium and phosphate of soda, etc.), which collectively form the solid constituents of the urine. It does not necessarily follow that these secreting cells undergo rapid decay and renewal; it is more probable that they have the power of selecting certain materials from the blood, and of transmitting them, without the disintegration of their own structure, to the interior of the tube.

The physical and chemical characters of the secretion yielded by the kidneys will be considered in the article URINE.

DISEASES OF THE KIDNEYS.—The most important affection of the kidneys is *Bright's disease* (q.v.), the symptoms of which have already been described. On examining the kidneys in a case of death from this disease, it is found that there is a great increase in the size and number of the oil-globules which exist in small quantities in the epithelial cells of the healthy gland. The urinary tubes becoming thus gorged and distended, compress the capillary vessels on their exterior; and hence, in consequence of passive congestion of the Malpighian vessels, which gives rise to obstruction of the circulation, the serum of the blood exudes in place of pure water, and gets mixed with the urine, which thus becomes albuminous in this disease. *Inflammation of the kidneys*, or *nephritis*, is not uncommon. In acute inflammation, there is a deep-seated pain in the small of the back, on one or upon both sides, often extending downward towards the inside of the thigh. The pain is increased by pressure, sudden change of position, coughing, etc. The urine is scanty, high-colored, albuminous, or bloody, and often deposits pus and sedimentary matter on standing. There is more or less fever, preceded by rigors; nausea and vomiting are frequent; and the bowels are usually constipated. In chronic inflammation, most of the above symptoms are present but in a milder form, and there is little or no fever. In both the acute and chronic form, the blood may become contaminated.

as in Bright's disease (q.v.), from the want of due purification by the kidneys, and various secondary affections may arise.

The causes of inflammation of the kidney are various. It may be due to mechanical violence, exposure to cold and wet, and to the ingestion of substances which have the property of irritating the kidneys, as cantharides, oil of turpentine, etc. A gouty diathesis and the presence of concretions may also be noticed as causes. Any affection capable of producing retention of urine may, by distending the pelvis of the kidney, occasion inflammation, as, for example, stricture of the urethra and affections of the spinal cord producing paralysis of the urinary organs.

The treatment must, on the whole, be antiphlogistic (or lowering) in the early stage of the disease, but must be considerably modified in accordance with the origin of the disease.

Nephralgia, or *pain in the kidney without inflammation*, which usually but not invariably depends upon the passage of a concretion through the ureter, is one of the most painful affections to which the human frame is subject. It usually comes on when the concretion makes its way from the pelvis of the kidney into the ureter, and does not cease till it has passed into the bladder. During an ordinary fit of gravel (see CALCULUS), or even in apparent health, a severe pain is suddenly felt in the loins, extending to the groin, thigh, or abdomen, and sometimes simulating colic. The pain comes on in paroxysms, with intervening periods of comparative ease. The paroxysm is usually accompanied by vomiting, a small and feeble pulse, and a profuse sweat. There is a frequent desire to pass urine, but the effort is usually futile. At length, usually after some hours, or even one or two days, the concretion escapes into the bladder, and the pain suddenly ceases.

This affection may be readily distinguished from inflammation by the sudden access and paroxysmal character of the pain and by the absence of fever.

As the disease is one which is very liable to return, the patient should know what steps to take before advice can be obtained. Opium is our sheet-anchor in this affection. The patient (assuming that he is an adult) may take two grains of opium, or an equivalent dose (35 or 40 minims) of laudanum or solution of muriate of morphia, when the attack comes on, and may repeat the medicine in half-doses every hour or two hours, until the pain is somewhat alleviated, or signs of the narcotic influence of the drug begin to manifest themselves. Should the stomach be so irritable as to reject the medicine, a dram of laudanum in a little thin starch may be injected into the rectum. Hot fomentations to the abdomen and loins also give partial relief. Chloroform may be inhaled with great benefit during the paroxysms, but only under the superintendence of a physician.

Suppression of urine, or *ischuria renalis*, is an affection in which there is either a complete cessation of the secreting action of the kidney, or so considerable a diminution as to be clearly morbid. It is undoubtedly, in most cases, a mere system of some other disease, but occasionally no other disorder is obvious, and it must be regarded as an independent or idiopathic affection. If no urine be separated from the blood, coma (intense stupefaction) and death rapidly supervene from the retention of urea (or of carbonate of ammonia, into which it readily breaks up) in the blood, which thus becomes impure, and acts as a poison on the brain. The treatment, which is seldom successful, is too purely professional for notice in these pages.

For further information on diseases of the kidneys and allied affections, see the articles BRIGHT'S DISEASE, DIABETES, DROPSY, and CALCULUS.

KIDNEY-VETCH, *Anthyllis*, a genus of plants of the natural order *leguminosæ*, sub-order *papilionaceæ*, containing a number of species, some shrubby, and some herbaceous, natives chiefly of the warmer temperate parts of the Eastern Hemisphere. They have the petals nearly equal in length, and an oval 1 to 3-seeded pod, inclosed in the permanent inflated and generally downy calyx. The only British species is the common kidney-vetch (*A. vulneraria*), also called *lady's fingers*, a herbaceous perennial, with pinnated unequal leaves, and crowded heads of yellow (or sometimes scarlet) flowers. It grows on very dry soils, and is eaten with avidity by cattle, but does not yield much produce.

KI'DO TAKAYO'SHI, a Japanese statesman, b. in the province of Choshiu about 1833, of gentle but not of noble birth. He actively participated in the acts and councils of his clan, that, with Satsuma and Tosa, led the coalition that overthrew the Tokugawa shogunate in 1868. He was present at the bombardment of Shimonoseki by the four allied foreign fleets in 1864, and was there converted to the idea of the superiority of foreigners and the impossibility of their expulsion from Japan. Thenceforward he became one of the most potent forces in that national movement, and one of the leading persons in that group of men, that overthrew the usurpation of 264 years and the effete feudalism of ten centuries. While Saigo was the heart and sword of the revolution, Kido became its brain and pen. He composed the able address to the throne, purporting to come from the four daimios of Satsuma, Hizen, Tosa, and Choshiu, which proposed and secured the abolition of the feudal system and the retirement of 270 daimios to private life, relinquishing their lands and incomes to the mikado. He was appointed envoy in the embassy to the United States in 1871, established the first newspaper in Japan, and secured the formation of an assembly of local rulers—a step towards representative gov-

ernment. Of pre-eminent political genius, of stainless life, and gentle manners, his loss to the nation was profoundly deplored by the mikado and the whole nation. He died in Kioto, May 23, 1877.

KIDRON, or KEDRON. See GEHENNA.

KIEF, or KIEV, a government of Little Russia, lies immediately n. of the government of Kherson, and is bounded on the n.e. by the river Dnieper. Area 19,546 sq.m., more than one-half of which is arable, and one-fifth under wood. Pop. '70, 2,175,132. In the northern portions the surface is flat and marshy; the s. is covered with ranges of hills, branches of the Carpathian mountains, running from n.w. to s.e. The chief river is the Dnieper, with its tributaries, the Pripet and the Teterev. The soil, chiefly loam, and partly clay and sand, is very fertile, so that, although agriculture is backward, the returns are considerable. The climate is exceedingly mild; everything is in blossom in April, and frosts do not set in till November. Agriculture and horticulture are the chief occupations of the inhabitants. Wheat is extensively exported to Odessa. There are numerous distilleries, and beet-root sugar, tobacco, cloth, china, and delft are manufactured. Large cargoes of timber and fire-wood are floated down the Dnieper to the ports of the Black sea annually.

KIEF, or KIEV, the chief t. of the government of that name, on the w. bank of the Dnieper, is one of the oldest of the Russian towns, and was formerly the capital. In 864 it was taken from the Khazars by two Norman chiefs, companions of Ruric, and conquered from them by Oleg, Ruric's successor, who made it his capital. In 1240 (when it ceased to be the capital) it was nearly destroyed by Batû khan of Kiptchak. Christianity was first proclaimed in Russia at Kief in 988. In the 14th c. it was seized by Gedimin, grand duke of Lithuania, and annexed to Poland in 1659, but in 1686 was restored to Russia. The Kief of the present time is one of the largest towns in the empire, possesssing, '77, 127,251 inhabitants, one-third of whom are Poles. It is strongly fortified, has a remarkable suspension bridge over the Dnieper, one of the best universities in Russia, a military and an ecclesiastical school. In its neighborhood is the convent of Kievo-Petchersk, a celebrated Russian sanctuary, which annually attracts thousands of pilgrims from the most remote corners of the empire. Kief is not an industrial but a commercial center; large fairs take place here annually, the most celebrated of which is the "contracts" during the winter, which is attended by all the surrounding proprietors and by many foreign merchants. The trade is chiefly with Odessa, Poltava, and Austria.

KIEKIE, *Freycinetia Banksii*, a shrub of the natural order *Pandanaceæ*, yielding an edible, aggregrated fruit, said to be the finest indigenous fruit of New Zealand. The species of this genus are tropical Asiatic or Polynesian climbing shrubs, with sheathing, long, rather grassy leaves, usually spinous or serrated on the margin, and terminal, solitary, or clustered spadices of unisexual flowers. The kiekie is found in the northern part of New Zealand. It climbs the loftiest trees, branching copiously. The leaves are 2 or 3 ft. long. The spadices are clustered. The fruit is a mass of fleshy berries. The jelly made of it tastes like preserved strawberries.

KIEL, capital city of the Prussian province of Sleswick-Holstein, lying on a deep fjord or bay of the Baltic, which admits large ships to anchor close to the town, is the station of the greatest portion of the German navy, and is situated in lat. 54° 20′ n., and long. 10° 7′ east. Pop. '80, 43,594. Kiel is the seat of the supreme court of appeal for the province, and of a university which was founded in 1665, and has a library of 80,000 volumes, an observatory, a botanic garden, a natural history museum, and a good collection of northern antiquities. In 1872 an imperial order was issued that an academy for the benefit of all sea-farers should be established at Kiel. The town has two bridges, connecting the northern or older parts with the rapidly increasing southern suburbs. The most ancient of its five churches is St. Nicholai, which dates from the 13th century. The castle has a good sculpture-gallery, containing, among other copies of the best works of art, casts of the Elgin marbles, and of Thorwaldsen's best productions. The public gardens and the wooded shores of the fjord, together with the woods of Düsternbrook (where a bathing establishment has existed since 1822), afford numerous pleasant walks. Kiel, which became a member of the Hanseatic league in the 14th c., was formerly the chief mart for the farm and dairy produce of the Danish islands; and the very ancient annual fair, which was held for four weeks after Epiphany, was attended by buyers of all classes from every part of the duchies. Kiel has manufactures of tobacco, oil-colors, sugar, machinery, ironmongery, etc. Butter is extensively exported. It is an important link in the line of communication between Germany and the Baltic islands and ports; and steam-packets daily convey passengers and mails to and from the ports of the Baltic and North sea.

KIEL'CE, a Russian government of Poland on the Austrian frontier; 3,623 sq.m.; pop. 470,300. It is a rich mineral region, and produces rye, wheat, and fruits. The Vistula separates it from Gallicia, and it is watered by the Nida and Pilica.

KIEL'CE, capital of the government of that name; pop. 7,205. It is situated about 100 m. from Warsaw, in the midst of iron, copper, lead, and coal mines. It is the seat

of a Roman Catholic bishopric, and contains a number of churches, a theological seminary, and a monastery.

KIENCHOW', or KUNGCHOW. See HAINAN, *ante.*

KIEN'-LUNG, 1709–99; b. China; was the fourth emperor of the Manchu dynasty, and succeeded his father, Yung Tching, in 1735. His reign was remarkable for the hospitality which he extended to a tribe of 300,000 emigrants from the country of the Volga, to whom he gave land for their subsistence, while he extended to them his countenance and protection. Although an enemy of Christianity and author of an edict against it, he was the first Chinese emperor to receive an English embassy (lord Macartney, 1793). He was far in advance of his countrymen in wisdom and beneficence, and was noted for the encouragement that he afforded to the learned of all nations. At the age of 86 he abdicated in favor of his son.

KIE'PERT, HEINRICH, b. Berlin, 1818; an enthusiastic student of geography in his youth, and later a pupil of Ritter; devoted two years to the exploration of Asia Minor (1841–42), and made an atlas of Greece and the Greek colonies on his return to Berlin. He was for seven years director of the geographical institute of Weimar, and in 1859 became a professor in the university of Berlin. He published several geographical works, among which his *Neuer Hand-Atlas der Erde* and *Atlas der alten Welt* are the most important.

KIE'SEWETTER, RAFAEL GEORG, 1773–1850; studied law in Vienna and held important official positions under the Austrian government, but devoted himself assiduously to historical writings on music, including that of Holland, Greece, and the Arabs. Among these, the chief work from his pen was a history of song from the period of the middle ages down to modern times.

KIEV. See KIEF, *ante.*

KIJ'ARI. See KEDJERI, *ante.*

KIKIN'DA, NAGY-KIKINDA, or GROSS-KIKINDA, a t. of the Austrian empire, in the Temeser Banat, 134 m. s.e. from Pesth. It is situated in a level fertile country. Pop. '80, 19,485.

KILAUE'A, a vast crater in the e. part of the island of Hawaii, 10 m. from the sea, on the e. slope of the great volcano of Mona Loa, 4,000 ft. above the sea, and 9,800 ft. below the summit of Mona Loa. It is 30 m. by bridle-road from the seaport of Hilo, from which it is usually visited. The entire island of Hawaii is one vast pile of lava, the outflow of many craters, of which the summit crater of Mona Loa is the greatest, and Kilauea, near the base of the mountain, the most constantly active. The latter forms no cone of itself, but is a great sink on the side of the mountain, in the midst of grazing lands, trees, and ferns on the side to the windward of the crater. This sink is 3 m. long, 2 m. wide, and in the parts where the lava is not boiling from 500 to 800 ft. deep. The floor of the crater, being formed by the streams that constantly flow and cool in one or another part of it, is being filled up slowly in periods of moderate activity, but is liable to fall in or sink at any time, especially during great volcanic activity when eruptions elsewhere draw off the lava from below. At the e. end of this great sink are the pots and lakes of boiling lava, around which are low conical slopes of lava and ashes, but nowhere rising to the level of the ledges that surround the crater-sink. The lava in one or another of these little lakes is in perpetual ebullition, and flows out through a subterranean channel under the rim of the active craters to the lower level of the main crater-basin, forming small or large streams upon its black surface, which cool quickly and can be walked upon within a day or two after the lava ceases to flow. Travelers walk for miles upon these streams where the red, partly cooled lava can be seen in the crevices under their feet. In 1868, when Samuel L. Clemens (Mark Twain) visited the crater, it showed signs of unusual violence in its eruptions, and bid fair to fill and overflow the great sink; but a mud and lava eruption broke out on a grazing slope of the mountain 20 m. away, when the unusual activity of this crater ceased, while the mud flow submerged a valuable grazing country and made its way down the mountain far into the sea. The great eruptions from this crater were those of 1789, 1823, 1832, 1840, and 1868. There seems to be no subterranean connections between the sources of the eruptions from Mona Loa and Kilauea, each having its periods of terrible activity without seeming to affect the other. There is (1874) a pleasant rustic inn or volcano-house on the ledge overlooking the crater, and the road from Hilo to the crater furnishes an example of an ancient Hawaiian paved road, 6 ft. wide, that rises and falls on a straight course over the low lava ridges towards the crater. The crater is about 250 m. by sea from Honolulu. A steamer plies irregularly between that city and Hilo.

KILBOURNE, JAMES, 1770–1850; b. Conn.; was engaged in trade in early life, but, having acquired sufficient means for his support, adopted the ministry as a profession, and attached himself to the Episcopal church, in which he continued until 1804, when he retired. Having formed an organization for the settlement of western lands, he emigrated to Ohio, and founded Worthington township in that state. Here he became a magistrate, and also filled the office of surveyor of public lands. He was sent to congress in 1813, and served four years. He was president of the board of trustees of Worthington college during 35 years.

KILDA, SAINT. See SAINT KILDA, *ante.*

KILDARE, an inland co. of the province of Leinster, Ireland, distant, at its eastern border, about 14 m. w. from the English channel. Its greatest length from n. to s. is 40 m.; from e. to w., 27 m.; area, 418,497 acres, of which 356,787 are arable. Its surface is almost one unvaried plain, with the exception of the s.e. border, which meets the range of Dublin hills, and the southern border, which likewise is slightly elevated. Its principal rivers are the Liffey and the Barrow, the latter of which forms in part its boundary. The Boyne has its source in Kildare, as has also the Blackwater. It is traversed by the Grand and Royal canals. The most remarkable features of Kildare are the celebrated plain called the "Curragh of Kildare"—an undulating down, 6 m. long, and 2 broad, the site of the well-known race-course, the Newmarket of Ireland—and the bog of Allen. The solitary hill called Allen, which rises in the great central limestone plain, is a mass of granular compact greenstone and porphyry, with some red sandstone conglomerate, which is quarried for millstones. The soil is generally a rich loam, resting on limestone or slate. The total extent of land under tillage, in 1853, was 140,837 acres; but the proportion of pasture land to tillage has been much increased, the acres under crop in 1876 being only 121,940. The pop. (1880) was 75,804, of whom 66,184 were Roman Catholics, 8,616 Episcopalians, and the rest of other denominations. The principal towns are Naas, Athy, and Kildare; but the number of minor towns is beyond the average of Irish counties. Kildare sends two county members to the imperial parliament. In antiquities of all historical periods, Kildare is peculiarly rich. In the time of Geraldus Cambrensis the plain of the Curragh had a stone circle similar to that of Stonehenge; it is now a military camp. There are five round towers and some stone crosses still preserved, and many castles of the Anglo-Norman period, three of which are still inhabited. The well-known Roman Catholic college of Maynooth (q.v.) is situated in this county, as is also the Jesuit college of Clongowes wood.

KILDARE' (Hib. *Kill-dara*, church of the oaks), an ancient episcopal and market t. in the county of the same name in Ireland, 25 m. s.w. of Dublin. It owed its origin to a monastery, founded, according to the annalists, in the end of the 5th c. by St. Bridget, the daughter of an Irish chieftain, who received the veil from St. Patrick himself. Around the monastery a town of some importance sprang up, which, as well as the abbey, was repeatedly plundered by the Danes. After the English invasion it rose to considerable importance, and a parliament was held in it in 1309. In the wars of Elizabeth, and subsequently in the great civil war, it suffered almost complete ruin, from which it but partially recovered. Prior to the union Kildare returned two members to the Irish parliament. At present it is much decayed, consisting of but 246 houses. The pop. in 1851 was 1298; it is now slightly increased, being (1871) 1333. The see of Kildare, together with that of Glendalough, in the Protestant church, is united to that of Dublin. In the Roman Catholic the united sees of Kildare and Leighlin form a distinct diocese. Notwithstanding its present decayed condition Kildare is exceedingly interesting for its antiquities, which comprise the ruined cathedral, a Franciscan and a Carmelite abbey, a portion of the chapel of St. Bridget, popularly called "The Fire-house," from a perpetual fire anciently maintained there, and, above all, the round tower, 130 ft. in height, which crowns the elevation on which the town is built, and is seen from a great distance.

KILDEER, an American bird belonging to the plover family, of the order *grallatores*, or waders; allied therefore to the cranes and herons. It is the *charadrius vociferus* of Linnæus, but now placed in another genus, *ægialitus*, and is called *ægialitus vociferus*. It inhabits North and South America. It is about 10 in. long, with a spread of wing of 20 inches. Head small; neck rather short with a black ring around it; body slender, weight from 5 to 7 oz.; legs rather long, but not as much so as in others of the order; feet long and slender. Feathers on breast and underpart nearly white; on back and upper surface of head, grayish brown; below the ring on the neck there is a black transverse band on the breast. Quills dark-brown, with half their inner webs white. Four middle tail feathers white-tipped, with a wide subterminal black band, and the lateral ones widely tipped with white. The kildeer is common throughout North America, going to the south in winter and to Atlantic and Pacific islands. In summer it frequents plowed fields and sandy or gravelly banks of clear streams, feeding principally on worms and insects. In the winter it goes to the sea-shore and frequents marshes, mud flats, and oyster beds. Its flight is powerful, and it is a very rapid runner. It breeds at the south in April; later in the middle states. It usually lays four eggs, $1\frac{1}{8}$x$1\frac{3}{4}$ in., cream colored, with brown blotches. It frequently utters a shrill cry, especially when alarmed, which somewhat resembles a repetition of its name. The flesh is said to be tough, like that of other members of the order, but it is one of the most inoffensive and useful birds, as it feeds mostly on destructive insects, and should never be killed. See CHARADRIADÆ; and GRALLÆ.

KILHAM, ALEXANDER, 1762–98; the founder of the "New Connection of Wesleyan Methodists," often called Kilhamites. He was the first to advocate the representation of the lay element in the government of the church; was converted at the age of 18; and in 1785 received by Wesley into the regular itinerant ministry After the death

of Wesley there was much controversy among his followers as to the duty of continuing their submission to the established church. At the first conference after Wesley's death in 1791 it was decided to "take the plan as Mr. Wesley had left it." But the controversy continued, some from their attachment to the establishment opposing any change, while others were determined to administer the sacraments as well as preach the word, and urged a total separation from the church of England. Kilham was of the latter class. Three years before Wesley's death he had declared, "Let us have the liberty of Englishmen, and give the Lord's supper to our societies." At the next conference he was severely criticised for his assertion of the popular rights, and for the publication of a pamphlet on the *Progress of Liberty*, in which he urged a distribution of the powers of government between the clerical and lay element. For severe remarks which he made that the preachers regarded as defamation of the society, he was formally arraigned at the conference held in 1796, and expelled from the connection. This resulted in the formation of the independent body now called "New Connection Methodists." He did not long survive the censure. All acknowledged him to be a man of fervent piety, and zealous for the success of the Wesleyan cause.

KILIA, a t. in the portion of Bessarabia ceded by Rumania to Russia in 1878, is situated on the left bank of the Kilia branch of the Danube, 25 m. n.e. of Ismail. Commerce is carried on here to some extent; pop. 6,400.

KILIAN, a saint of the Roman Catholic church, and bishop of Würzburg in the 7th century. He was a native of Ireland, and a member of that distinguished body of Irish missionaries among the Teutonic nations, to whose labors, in the 6th and 7th centuries, Christianity and civilization were so largely indebted in the southern and south-eastern countries of Europe. He was of a noble family, and while yet young entered the monastic life in his native country. Having undertaken, in company with several of his fellow-monks, a pilgrimage to Rome, he was seized in his journey through the still pagan province of Thuringia with a desire to devote himself to its conversion, and being joined by his fellow-pilgrims, Colman and Donatus, he obtained for the project at Rome, in 687, the sanction of the then pope, Conon, by whom he was ordained bishop. On his return he succeeded in converting the duke Gosbert, with many of his subjects, and in opening the way for the complete conversion of Thuringia; but having provoked the enmity of Geilana, who, although the widow of Gosbert's brother, had been married to Gosbert by declaring the marriage invalid and inducing Gosbert to separate from her, he was murdered at her instigation, during the absence of Gosbert, in 789, together with both his fellow-missionaries. The work which Kilian commenced was completed some years later by Boniface and his fellow-missionaries.

KILIMANJARO' (the Great Mountain), supposed to be the highest known mountain of Africa, is situated on the western border of Zanzibar, in lat. 3° 40′ s. and long. 36° east. It is covered with perpetual snow, and is supposed to reach an elevation of 20,000 ft. above sea-level.

KILKENNY, an inland co. of the province of Leinster, in Ireland, bounded on the s. by Waterford, is 46 m. in its greatest length from n. to. s. and 24 in its greatest width from e. to west. Its area is 796 sq.m., or 509,732 acres, of which 405,321 are arable. The population has been steadily decreasing since 1841, when it was 189,312. In 1851 it was 138,775 ; in 1861 it had fallen to 110,341, and in 1881 (including the population of the city) to 99,531 ; of whom 93,699 were Roman Catholics, and 4,832 Episcopalians. The surface of the county is very varied, the southern portion being especially elevated, the hills rising to a height of 1696 ft. in the summit of Mt. Brandon. In the western district are situated the Walsh mountains. The principal rivers are the Nore, which traverses the whole length from n. to s.e., and falls into the Barrow; the Barrow, and Suir, which form the eastern and southern boundary. The surface of Kilkenny, except the mountains in the s., is mainly of the limestone formation, overlaid in the n. districts by shale and sandstone. In the hilly districts is an extensive deposit of anthracite coal, but of inferior quality. In the neighborhood of the city of Kilkenny a valuable black marble, interspersed with fossil shells, is quarried, of which a considerable manufacture of chimney-pieces and similar objects is carried on. Marl is generally found throughout the county. The soil is generally fit for tillage. In 1876 the number of acres under crop was 175,710. The live-stock in 1876 was—horses, 17,802; cattle, 117,753; sheep, 113,729; pigs, 54,373. The capital is the city of Kilkenny (q.v.). The towns of secondary importance are Callan, Thomastown, Freshford, Urlingford, and Castlecomer, which is the center of the coal-district. Kilkenny has two county members, and the city a third. Kilkenny having been, from an early period after the invasion, the seat of the great Anglo-Norman families of Fitzgerald, Butler, Grace, Purcell, and others, has been the scene of much of the conflict of the English and Irish races, and is still thickly studded with remains of the military strongholds of the English settlers. The ecclesiastical remains are no less numerous; and it possesses five round towers and a considerable number of raths or tumuli, cairns, stone-circles, and pillars. The most remarkable natural curiosity is the cave of Dunmore, between Castlecomer and Kilkenny, opening by a natural arch of 50 ft. in height, and containing several chambers incrusted with stalactites. It is traversed by a subterranean stream.

KILKENNY, CITY OF (Gael. "Church of St. Kenny, or Canice"), the capital of the county of that name, and a county of itself, is situated on the river Nore, 73 m. s.s.w. from Dublin by the Great Southern and Western railway. Pop. of city in 1861, 14,174; in 1871 it had decreased nearly 10 per cent, being only 12,710 (of whom 11,369 were Catholics, 1181 Episcopalians, and 80 Presbyterians); pop. '71, of parliamentary borough, 15,748. The county of the city comprises an area of 17,012 acres, of which 16,091 are external to the city. Kilkenny returns one member to the imperial parliament. This city owes its origin to the cathedral church of the diocese of Ossory, which dates from the 12th century. Almost from the time of the invasion Kilkenny was a strong seat of the English power, its castle dating from the time of William earl of Pembroke, in 1195. From an early date Kilkenny was a place of much political importance, as well as the seat of numerous religious establishments. Being seated on the southern frontier of the pale, it was strongly walled in the end of the 14th c., and several parliaments were held in it, of which the most notable was that of 1367, in which was enacted the well-known "statute of Kilkenny," the great nucleus of all the distinctively English legislation for Ireland. The cathedral dates in part from the 13th c.; and the abbey church of St. John's, called the Black Abbey, has been partially restored, and is one of the very few ancient Irish churches now in actual occupation for the religious use of the Roman Catholics. A handsome Roman Catholic cathedral also has been recently completed. The so-called college or grammar-school of Kilkenny was founded by the Butlers in the 16th c., and was further endowed by the great duke of Ormond. St. Kyran's college is an educational establishment for the Roman Catholics, and is interesting as one of the first opened by that religious community after the repeal of the law which made Catholic education penal in these countries. Kilkenny formerly possessed considerable manufactures of blankets and coarse woolen and linen cloths, but of late they have much declined. It is the seat of tolerably extensive marble-works, and has a large and active provision-trade, the chief outlet of which is Waterford, with which Kilkenny is connected both by river and by the Kilkenny and Waterford railway. Pop. '81, of the city, 12,299; of parl. bor., 15,278.

KILLARNEY, a small market t. of Ireland, in the co. Kerry, Munster, is situated 1½ m. from the lower lake of the same name, 17 m. s.e. of Tralee, and 46 m. w.n.w. of Cork. It contains an imposing Roman Catholic cathedral, a Dominican friary, and a nunnery, has little trade, is exceedingly dull in winter, though it wakes up into animation in spring and summer, when it is visited by crowds of tourists, attracted by the beauty of the scenery in the vicinity. Pop. '81, 6,651.

KILLARNEY, LAKES OF, a series of three connected lakes, near the center of the county of Kerry, Ireland. The surplus waters are conveyed by the river Laune n.w. to Castlemain harbor. The upper lake is 2½ m. long and three-fourths of a m. broad, and contains several islands. The Long Range river, leading to the middle lake, is about 3 m. in length. The middle lake is 2 m. long by 1 m. broad; and the lower lake, with about 30 islands, is 5 m. long by 3 broad. The beauty of the scenery, which is widely celebrated, consists in the gracefulness of the mountain outlines, the rich and varied coloring of the wooded shores, deepening through gray rock and light-green arbutus to brown mountain heath and dark firs.

KILLER, or ORCA, a cetacean of the dolphin family, noted for its great ferocity and voracity. The average length of the males is 20 ft., of the females, 15 feet. An extremely prominent dorsal fin is situated about two-fifths of the distance between the nose and tip of the tail. This fin is 6 ft. in height in the largest of the animals, the *orca rectipinna* of Cope, and has the shape of a dagger. There is also the *orca ater* of the same naturalist, somewhat smaller and having a much shorter fin. There has always been a want of precise classification in this branch of the dolphin family, on account of the difficulty of capturing these fierce and powerful animals. The *orca gladiator* of the Atlantic is said to be a distinct species, and the fiercest of all the genus. The orca rectipinna, according to capt. Scammon, is more slender in proportion and less marked with light spots than the other species. It is almost of a jet-black above, and lighter beneath; but the smaller species are beautifully variegated, and often contrast in color like the stripes of a tiger. There is a transverse, crescentic dorsal band of white just behind the dorsal fin, which forms a prominent characteristic in two varieties of orca ater. The mouth in all the species is armed with strong, sharp, conical teeth which interlock like those of the smaller dolphins. The short-finned killers of the western coast were till recently supposed to be confined to the colder regions, but it has been found that they frequent both high and low latitudes, and capt. Scammon regards them as "marine beasts that roam over every ocean, entering bays and lagoons, where they spread terror and death among the mammoth balænas and smaller species of dolphins, as well as pursuing seal and walrus, devouring in their marauding expeditions up swift rivers numberless salmon and other large fishes that come in their way." Sometimes the orcas are seen in schools from 5 to 10 abreast, but more frequently go in smaller squads of less than a dozen, gliding near the surface of the water, showing nothing but their tall dorsal fins; sometimes showing more than half the body; sometimes leaping out. The larger orcas are possessed of great power of locomotion, quickly overtaking other species of dolphins and swallowing them whole. Capt. Scammon saw

an attack made by three killers upon a cow whale and her calf in a lagoon on the coast of lower California in the spring of 1858: "The whale was of the California gray species, and her young was grown to three times the bulk of the largest of the killers engaged in the contest, which lasted for an hour or more. They made alternate assaults upon the old whale and her offspring, finally killing the latter, which sank to the bottom, where the water was five fathoms deep. As soon as their prize had settled to the bottom the three orcas descended, bringing up large pieces of flesh in their mouths, which they devoured after coming to the surface. While gorging themselves in this wise the old whale made her escape, leaving a track of gory water behind." He also states that orcas have captured whales from whalemen hauling them away under the water. Eschricht, in his *Northern Species of Orca,* says that they have been known to swallow four porpoises in succession, and that 13 of these animals, together with 14 seals, have been found in the maw of one of these killers. Among the icy regions the orcas pursue and destroy the white whale or beluga and carry off the young of the walrus. They sometimes pursue the white whale into the bays and literally tear them to pieces, devouring only a portion of what they destroy.

KILLIECRAN'KIE, Battle of. See Graham, John, Viscount Dundee.

KILLINGLY, Conn. See page 890.

KILLINGTON PEAK, an elevation of the Green mountain range, 9 m. e. of Rutland, Vt., and 4,180 ft. above the sea. The prospect from the summit is exceedingly fine. Only two of the Vermont mountains, Mansfield and Camel's Hump, are higher than this.

KILMAINE', Charles Jennings, 1750–99; b. Dublin; was an officer in the French army, and with La Fayette in the American revolution. He also fought in the Vendean war, and when, in 1797, a descent upon England was contemplated, he was chosen general-in-chief of the proposed army of invasion.

KILMAIN'HAM HOSPITAL, an establishment near Dublin for the reception of wounded and pensioned soldiers. It was originally founded by king Charles II., and is conducted on similar principles to the sister institution, Chelsea hospital (q.v.). Kilmainham hospital is maintained by an annual parliamentary grant, and provides everything necessary for the comfort of upwards of 250 veterans and officers. The general commanding the forces in Ireland for the time being is *ex officio* the master of Kilmainham hospital, and has his residence on the estate.

KILMAR'NOCK, the largest t. in the co. of Ayr, Scotland, and one of the chief stations on the Glasgow and South-western railway, is situated on a small stream of the same name, 12 m. n.n.e. of Ayr. Kilmarnock was once celebrated for its manufacture of "cowls;" and the "Kilmarnock wabsters," a notable class, have received from the satiric pen of Burns a not altogether enviable immortality; but the introduction of machinery has reduced them to insignificance. Later the town became one of the chief seats of calico-printing in Scotland; but though this manufacture is still carried on, it has lost its former importance. Kilmarnock has several large engineering establishments, woolen mills, carpet manufactories, tanneries, and breweries. It has also some endowed schools, numerous churches, and has recently acquired a public park. The country round about is one of the richest in Scotland in coal and iron, and its dairy produce is also extensive. The largest cheese-show in Scotland is held here, the value of the quantity exhibited generally amounting to about £35,000. Kilmarnock is a parliamentary burgh, and unites with Rutherglen, Dumbarton, Port Glasgow, and Renfrew in sending one member to parliament. Pop. '81, 24,978.

KILN, a name applied to various kinds of furnaces, ovens, or other devices made of stone, brick, or iron, or of the material itself to be operated upon. They may be divided into intermittent and continuous, or perpetual; or into furnace-kilns, oven-kilns, and what may be termed mound-kilns, such as are used in making charcoal; and also a kind which are intermediate between oven and mound-kilns, as certain kinds of brick-kilns, where the raw brick is a part of the kiln, and forms a structure which cannot be strictly called an oven.

The *furnace-kiln,* for burning limestone, may be of an intermittent or of a perpetual kind. An intermittent kiln is one in which the fire is let to go out after the charge is burned; a continuous kiln is one which is so arranged that the charge may be removed and a fresh one put in while the fire is kept burning, and the furnace kept at its reducing heat. An intermittent furnace-kiln may be made of stone or brick of an oval form, like an egg standing on either end. That form resembling an egg standing on its larger end is perhaps the most common, although some lime-kilns are shaped more like deep bowls, without much contraction at the top. Where wood is very plentiful and cheap, and the lime is burned for agricultural purposes, so that ashes is a desirable ingredient, a common bowl shape is perhaps preferable, because it is readily charged with both limestone and wood, and a mass of wood may be placed upon the top in addition to what is used in the charge, by which thorough burning will be secured. In a furnace-kiln a grating of iron is placed at the bottom, or an arch of open brickwork, and then the charge is ingeniously placed, first with fuel, and then with the broken masses of limestone in such a manner as to allow the flame to pass through, and thoroughly perform the work of heating. These kilns may be from 10 to 30 ft. high, or even

higher. Intermittent oval kilns are used in burning Portland and other kinds of hydraulic cement, and they are 40 or 50 ft. high, and employ coke or coal for fuel. The charge is usually composed of one part of coke or coal and two parts of raw cement. There are, however, several kinds of cement which do not require so prolonged high heat as Portland cement, and these may be burned in a kind of kiln so constructed as not to require the fire to go out when the burned contents are removed. These kilns are cylindrical, except at the bottom, where they have the shape of an inverted cone, and a chamber below and a kind of spout leading into it from the bottom of the cone, so that the charge when burned may be raked down from time to time with a suitable apparatus, and removed, while it may be renewed at the top. Cement-kilns should be lined with fire-brick. A preferable form of continuous kiln is one in which the kiln cylinder is charged only with the material to be burned, and a current of flame or heated gas is introduced at the side near the bottom. The heat thus passing up through the material reduces it to the proper condition, without adding any of the ashes of the fuel to it.

Brick-kilns are of three kinds: 1. That in which the raw brick are piled up in such a way as to form flues for the flame and hot gases of the fuel to pass through, and which are in more common use than the others, and called by the workmen clamps. 2. That kind of kiln in which common stoneware is baked, which is a sort of reverberatory furnace, and unlike the kiln in which the better kinds of earthenware are baked. 3. An example of a third form of brick-kiln, now used to a considerable extent, is Hoffann's annular brick furnace, which was on exhibition at Paris in 1867. It consists of a large annular chamber, divided into sections, with openings on the periphery for the reception of the bricks or material to be baked. Movable partitions divide the sections. Each compartment of bricks is burned successively, the heat passing from one section to another, so that very little is lost. Kilns or furnaces of this kind are used for other purposes, as the degree of heat can be easily regulated. It is a very fine form of kiln for drying and seasoning lumber. Pottery-kilns are usually in the form of a tall cylinder of various dimensions, from 15 to 30 ft. in diameter, rising from 15 to 20 or more ft., and terminated by a truncated cone of about two-thirds the height of the cylindrical part. Coal-burning furnaces are placed at different parts of the circumference at the floor of the kiln and rather below it, the flues from all of them passing to a common opening at the center of the floor, where the heat enters and passes through the contents of the kiln, which are usually placed in receptacles called seggars. The porcelain-kiln differs from the earthenware-kiln in having two stories instead of one, the upper one being used for the first "firing," which is done at a lower heat than for earthenware. For the manner of using the various forms of kiln see Brick, Pottery, and Wood Charcoal.

KILO, or Kilogram. See Gram, *ante;* and Metric System.

KILOL'ITER. See Metric System.

KILOM'ETER. See Metric System.

KILPATRICK, Hugh Judson, b. N. J., 1836; graduated at West Point in 1861, and was appointed to the 1st artillery. He was wounded at the battle of Big Bethel, and received rapid promotion, being a col. of cavalry in 1862, and commissioned brig.gen. of volunteers the following year. He was in command of a division at Gettysburg, and the following spring, 1864, joined gen. Sherman, with whom he continued until the close of the war, being severely wounded during the battle of Resaca. He was commissioned maj.gen. in 1865, and resigned from the regular army in that year and from the volunteer service Jan. 1, 1866. From 1865 to 1870 he was U. S. minister to Chili. In 1880 he was a prominent candidate for the republican nomination for governor of New Jersey. He d. 1881.

KILRUSH', a small market and seaport t. of Ireland, in the co. of Clare, is situated on an inlet of the same name, on the northern shore of the estuary of the Shannon, 50 m. w. of Limerick. It is much resorted to for sea-bathing, has a good harbor with secure anchorage from westerly gales, and carries on considerable trade in corn, butter, pigs, fish, feathers, hides, flags, Irish moss, and in turf cut in the vicinity. Stone and slate are quarried here, and there are manufactures of flannels, friezes, and linen-sheetings. Pop. '81, 3,805.

KILSYTH', a burgh of barony in Stirlingshire, Scotland, is distant about 12 m. n.e. from Glasgow, with which it is connected by railway. There are here several factories, and coal and iron works. Pop. '81, 5,405.

KIL'WA, or Quil'oa, a t. on an island off the e. coast of Africa; 6 m. long; between which and the mainland there is a fine harbor. Lat. 8° 57′ south. It contains a strong fort, which is the residence of the governor under the sultan of Zanzibar.

KILWIN'NING, a t. in the co. of Ayr, Scotland. It consists chiefly of one long, irregular street. Hand-loom weaving, which at one time was carried on to a large extent, is now comparatively nothing. Hand-sewing or embroidery, introduced about a century ago, was the source from which a large portion of the female community derived their support, but very few are now employed in this branch of industry. The prosperity of the town now depends mainly on the numerous coal-pits in its vicinity,

and on its proximity to the Eglinton iron-works, which alone afford employment to 1700 miners and others. The parish church, built in 1775, occupies part of the site of the famous abbey of Kilwinning. The town is noted as being the birthplace of free-masonry in Scotland, and until the institution of the grand lodge in 1736, all other lodges in Scotland received their charters from "mother Kilwinning;" even after 1736, down to 1807, when the disputes between the two lodges were adjusted, many charters were issued by the mother-lodge. It is also celebrated for its archery, and is the only place in Scotland where shooting at the papingo is practiced. Pop. in 1881, 3,469. About a mile and a half to the s.e. of the town, in the midst of extensive and beautiful policies, stands Eglinton castle, the principal residence of the family of Montgomerie, earls of Eglinton, and the scene of the renowned "tournament" in 1839.

KIMBALL, Heber C., 1801–68; a noted Mormon priest; was an active missionary of the sect, one of the 12 apostles, and high-priest of the order of Melchizedek. He visited England in 1837–38 on a proselyting expedition, and was one of the foremost promoters of the Mormon religion, both at Nauvoo and Salt Lake.

KIMBALL, Richard Burleigh, b. N. H., 1813; graduated at Dartmouth college in 1834, went abroad, and returning began the practice of law in New York city. He has written a number of novels, of which the earliest, *St. Leger* (1849), was the most successful, having been republished in England and Germany.

KIMBLE, a co. in s.w. central Texas, drained by the Llano river and its n. and s. forks; 1300 sq.m.; pop. '80,1343. The surface is rough and broken, but the soil is good for pasturage. The valleys are fertile, but require irrigation. Salt is found in many places and timber abounds. Capital, Junction City.

KIMCHI, David (generally quoted by his initials, *ReDaK*), the most eminent Jewish grammarian and exegete, was b. towards the end of the 12th c., probably at Narbonne, where he spent the greater part of his life. He died in Provence about 1240. His father, Joseph Kimchi, was the author of a number of commentaries and other theological works. His brother Moses is renowned for works of a similar description, more especially a Hebrew grammar, *Mahalach Shebile ha-Daat*, of which there are several editions. His own celebrity, however, far exceeds theirs. His grammar, *Michlol*, and his lexicon, *Shorashim*, have, to a certain degree, been the basis of all subsequent Hebrew grammars and lexicons. He wrote also commentaries on almost all the books of the Old Testament, most of which have been separately printed, and translated into Latin by Nelo, Pontaco, Leusden, Muis, Janvier, etc., besides several polemical works, such as the *Vikuach*, *Teshuboth le-Nozrim*, etc. He was also made arbiter in the great Maimonides controversy (1232).

KIMHI, David. See Kimchi, *ante*.

KIMMERIDGE CLAY, the lowest series of the upper oolite, consists chiefly of a bituminous shale, in some places passing into an impure brown shaly coal, and in others having beds of sand or calcareous grit, with layers of nodules of septaria scattered through them. The series attains a maximum thickness of 500 or 600 feet. The beds occur in the vale of Pickering, in Yorkshire, and continue as a narrow band south through Lincoln and Norfolk, then s.e. through Huntingdon, Buckingham, and Wilts, to Dorset, where they terminate near Weymouth, and eastward at the village of Kimmeridge, which has given its name to the series. The fossils are chiefly mollusca, with a few placoid and ganoid fish, and several reptiles. In many places, layers of an oyster (*ostrea deltoidea*), without any other organic remains, occur in broad continuous floors parallel to the stratification: the valves are usually together, and young specimens are occasionally attached to the older ones.

KIM'POLUNG, a t. of Wallachia, 80 m. n.w. from Bucharest. Pop. about 8,500.

***KIN, NEXT OF.** When a person dies intestate, leaving personal property, such property devolves upon and belongs to the next of kin, who are the blood-relatives of the deceased. The law has declared a certain order of precedence among next of kin, which is not exactly the same in the three kingdoms. The degrees of kindred are divided into lineal and collateral. The lineal consists of the ascending, such as father, mother, grandfather, grandmother, paternal and maternal, and so on *ad infinitum;* and the descending, such as son, daughter, grandson, granddaughter, and so on *ad infinitum.* The collateral kindred consists of brothers, sisters, uncles, aunts, and the children of such *ad infinitum.* The mode by which the civil law computed the propinquity of degree was this: it allowed one degree for each person in the line of descent exclusively of him from whom the computation begins, and in the direct line counted the degrees from the deceased to his relative; but as regards collaterals, it counted the sum of the degrees from the deceased to the common ancestor, and from the common ancestor to the relatives. Thus, a brother was in the second degree, counting one to the father, and one from the father to the brother; a nephew, and also an uncle, a great-grandfather and a great grandson, were all in the third degree; a son and a father were in the first degree; and so on. This mode of computing the degrees of kindred has been adopted in the law of England and Ireland.

When a person dies intestate, leaving personal property, there are two classes of rights to which the next of kin are entitled: one is the right to administer the estate, or

to take out letters of administration; the other is the right to a share of the property itself. As regards the right of administration, the widow or next of kin may be selected, both or either. But among the next of kin, those are to be preferred who are nearest in degree according to the above computation: thus, a son or father is preferred to a brother, grandfather, or grandson; and these to a nephew, uncle, great-grandson, or great-grandfather; and so on. As regards the more valuable right of a share in the property, the rule is, that if there is a widow surviving, and also issue of the deceased, who are in that case the next of kin, then two-thirds of the property go to the next of kin; if there are no issue, but a widow survives, then one-half only goes to the next of kin; but if there is no widow surviving, then the whole goes to the next of kin. But the next of kin take according to the statute of distributions, which slightly differs from the order of the civil law as to the degrees of priority: thus, the children exclusively take the whole, if children survive; if some of the children are dead, leaving issue, then the issue collectively of each dead child take an equal share with the living children, by what is called the principle of representation. If there are none nearer than grandchildren, all take an equal share, and the issue of a deceased grandchild also take one of such shares. After all the children and grandchildren are dead without issue, then the father, if alive, is entitled to the whole. If he also is dead, then the mother, the living brothers and sisters (together with the issue of deceased brothers and sisters collectively), take each one share. After these are dead, then grandfathers and grandmothers, paternal and maternal, and nephews and nieces, if alive, take each a share. The right of representation, i. e., the right of the children of a deceased person being one of a class (and who, if alive, would have been one of the next of kin), to represent him, and take his share, applies as far as the children of brothers and sisters, but no further. The heir-at-law, if of equal degree, is one of the next of kin, and takes his share with the rest, though he also gets all the real estate. The half-blood counts among the next of kin equally with the whole blood.

In Scotland the rules of priority among the next of kin vary considerably from the above order, which prevails in England and Ireland. The children being entitled to an absolute legal share called legitim (q.v.), take the father's property in two characters—one part as legitim, the other as being next of kin—and the result is often different from what obtains in England. Moreover, in Scotland, though the heir-at-law may be one of the next of kin, still he is not entitled to take such share unless he collate (q.v.) the heritable estate. The degrees of kindred are not counted in exactly the same way. The father never can take more than one-half, nor the mother than one-third, while any of the brothers and sisters, or their issue, are alive. The half-blood does not share equally with, but in an inferior degree to the full blood. See *Supp.*, page 891.

KINA BALU, an interesting mountain in the northern angle of the island of Borneo, reaches a height of 13,000 feet. It was twice ascended by Mr. Spenser St. John, F.R.G.S., author of *Life in the Forests of the Far East.*

KINBURN′, a small fort of s. Russia, in the government of Kherson, is situated at the extremity of a long narrow sand-bank, which forms the southern boundary of the estuary of the Dnieper. During the Crimean war it fell before a naval expedition of the allies, Oct. 17, 1855. About a mile from the fort stands the little fishing-village of Kinburn.

KINCAR′DINESHIRE, or THE MEARNS, a maritime co. of Scotland, with Aberdeenshire and the Dee on the n., Forfarshire and the North Esk on the s. and w., and the North sea on the east. The rocks are granite, gneiss, sandstone, conglomerate, mica-slate, clay-slate, limestone, and trap. Area, 248,284 acres, of which 120,050 are in cultivation and 23,153 acres in wood. The county may be divided into five sections—viz., the coast, Garvock, the "How o' the Mearns," the Grampians, and Deeside. The coast-land and much of the "How" is of superior quality, and rents from £2 to £3 10s. an acre. The "How" forms part of the valley of Strathmore (q.v.). The Grampians, running across the county from e. to w., parallel to the Dee, with an average breadth of from 7 to 8 m., cover about 80,000 acres. One of the peaks, Mt. Battock, is 2,555 ft. high. The Deeside portion of the county is a comparatively narrow strip of light sharp soil. The rainfall is from 23 to 27 in.; in 1872 it was 50 per cent above the average. The produce of the county and the condition of the inhabitants have improved vastly since the middle of the 18th c., when there was little to be seen but poor huts and starved cattle, and when the value of the largest ox was not more than 20s. In 1876 Kincardineshire had 424 acres wheat, 12,840 acres barley and bere, 30,975 acres oats, 189 acres rye, 785 acres beans, 142 acres peas, 2,251 acres potatoes, 19,739 acres turnips. Of live-stock there were 4,748 horses, 28,504 cattle, 32,176 sheep, and 2,523 swine. There are few manufactures in the county. The principal towns and villages are Stonehaven (q.v.), the county town; Bervie, a royal burgh; Lawrencekirk, a burgh of barony; and Johnshaven. In the beginning of the 19th c., about 1 in 50 of the population was on the poor-roll, the average expenditure for each being £1 16s. In 1872, 17 parishes of the 19 in Kincardineshire were assessed for the poor, and had 1530 paupers, costing £8,545. Of the objects of antiquarian interest, the most noted is Dunnottar castle (q.v.). Kincardineshire was the birthplace of George Wishart, Robert Barclay, bishop Burnett,

Dr. J. Beattie, and Dr. Thomas Reid. Pop. '81, 34,460. Valued rent, 1876–77, £263,509.

KINCHOW', a city of China, in the province of Hoo-pee, on the left bank of the Yang-tze-Kiang, in lat. 30° 26′ 40″ n., long. 112° 8′ e., about 150 m. w. of Hankow. Kinchow is surrounded by a strong wall, and is considered one of the keys of the empire. Pop. estimated at 600,000.

KINDERGARTEN, the name of a new kind of school or training-place for young children—name and thing imported from Germany. The principle was first propounded and the system invented by Friedrich Fröbel, b. 1782, d. 1852. He was early impressed with the insufficiency of the teaching and training given in the ordinary infant-school, and with the fact that the loving instinct of the mother remained merely an instinct, which required, for the training of the child, thoughtful guidance and direction. He saw that the teaching in the infant-school was to a large extent traditional; that the selection of subjects and exercises depended on fashion, or upon the likings or prejudices of the teacher, and not upon a genuine knowledge of the nature of children; and that the whole procedure was based upon an induction of facts and phenomena which had been hastily made, and rested upon no firm ground of principle. He therefore set to work to study the ways and doings of infants from their birth, and to note down systematically what kind of mental food and what kind of bodily activity nature prompted them at each stage of their existence to prefer. He also reached the following principles: (*a*) That education means a harmonious development of all the bodily and mental powers; (*b*) that the *spontaneous* is the raw material and the only element that is valuable in education, and that the teacher must connect all his instruction with these and graft it upon the spontaneous activity of the child; (*c*) that the work of the teacher is not to give knowledge *ab extra*, but to supply material, means, and opportunities in a rational and harmonious order for the child's mind spontaneously to work upon; and (*d*) that in the presentation of their materials or occupations there must be no break (*in naturâ non datur saltus*), because all occupations which train must be developed out of each other. The early materials for instruction are called *gifts*, because they are presented to the child only when his nature and stage of development call for them. The province of the educator is to map out the world of early childhood, and to engineer—that is, to give each step in—the paths to knowledge or power in each subject; the province of the teacher is to apply this general knowledge to particular cases, and with loving care and delighted patience to provide the right mental food—the most suitable activities for each hour and stage of development. His complete aim is the systematic cultivation of all the powers in complete equilibrium. Hence, while the infant-school goes too much into work and drill, Fröbel's system calls for attention to the individual child; he weaves the work into "play" (spontaneous activity), and he evolves "drill" out of the free individual desire for society. Hence Fröbel's large use of song and dance. He respects freedom and the right order of development so much that he would not give a *word* to a child until a mental necessity and desire had been created by an ordered set of experiences for that word; and he cultivates the senses and the hand with the utmost care, so that perfectly accurate perception and comparison may produce true and clear conceptions, which again give rise to true and just judgments. "All the byways to untruth," says Miss Shirreff (*Kinder-Garten*, Chapman & Hall, 1876), "such as exaggeration, confusedness of mind, inaccuracy of speech, are cut off." The child is not *taught*, but *led* by a set of ordered experiences to the perception of the principles of number (*arithmetic*) and of space (*geometry*); and his senses and powers of hand and eye are cultivated by an elaborate series of exercises. The steps in Fröbel's system are: (1) *Spontaneity* or *play*, which, however, in a child is always serious, and never frivolous; (2) direction of this towards external fact and truth; (3) weaving of spontaneous powers into ordinary occupations; (4) development into self-culture, independent action, a love of knowledge, beauty, and society. The process, like the process of nature, is slow, tranquil, and organic; but no part of it requires to be undone. The child sees, imitates, or reproduces and invents new forms; these are the three steps in each subject for each pupil. Its most earnest disciples give to it the name of *The New Education*. See FROEBEL, FRIEDRICH WILHELM AUGUST.

The system has made great way in America, and is now making way in England. There is a Fröbel society which consists of a large number of thinkers and workers in education. The London and Birmingham school-boards have introduced the system; and several training-colleges are working upon its lines. The best English books as yet on the subject are Laurie's *Kindergarten Manual;* Miss Shirreff's *Kindergarten;* Heerwart's *Music for the Kindergarten;* Köhler's *Praxis*, translated by Miss Gurney.

KINDERHOOK, a township in Columbia co., N. Y., 5 m. e. of the Hudson river, 20 m. s.e. of Albany. It was the birthplace and home of Martin Van Buren, eighth president of the United States. The township contains 3 villages—Kinderhook, Valatie, and Niverville. Kinderhook village has a weekly newspaper, 4 churches, 2 national banks, and a cotton-mill. "Lindenwald," the former residence of Mr. Van Buren, is 2 m. s. of the village. Pop. of tp. '80, 4,200.

KING (Saxon, *Cyning;* Sanskrit, *Ganaka*, father, from the root *Gan*, to beget: "What the husband was in his house, the lord, the strong protector, the king was among his

people"—*Max Müller*), the person vested with supreme power in a state. According to feudal usages the king was the source from which all command, honor, and authority flowed; and he delegated to his followers the power by which they exercised subordinate rule in certain districts. The kingdom was divided into separate baronies, in each of which a baron ruled, lord both of the lands, which he held under the obligation of rendering military service to the king, and in many cases also of the people, who were vassals of the soil, and his liege subjects. In modern times the kingly power often represents only a limited measure of sovereignty, various constitutional checks being in operation in different countries to control the royal prerogative. The king may succeed to the throne by descent or inheritance, or he may be elected by the suffrages of the nation, or by the suffrages of some body of persons selected out of the nation, as was the case in Poland. Even when the kingly power is hereditary, some form is gone through on the accession of a new king, to signify a recognition by the people of his right, and a claim that he should pledge himself to perform certain duties, accompanied by a religious ceremony, in which anointing with oil and placing a crown on his head are included as acts. By the anointing a certain sacredness is supposed to be thrown round the royal person, while the coronation symbolizes his supremacy. There is now no very clearly marked distinction between a king and an emperor (q.v.). A queen-regnant or princess who has inherited the sovereign power in countries where female succession to the throne is recognized possesses all the political rights of a king.

In England it is said that the king never dies, which means that he succeeds to the throne immediately on the death of his predecessor, without the necessity of previous recognition on the part of the people. He makes oath at his coronation to govern according to law, to cause justice to be administered, and to maintain the Protestant church. He is the source from which all hereditary titles are derived, and he nominates judges and other officers of state, officers of the army and navy, governors of colonies, bishops, and deans. He must concur in every legislative enactment, and sends embassies, makes treaties, and even enters into wars, without consulting parliament. The royal person is sacred, and the king cannot be called to account for any of his acts; but he can only act politically by his ministers, who are not protected by the same irresponsibility. A further control on the royal prerogative is exercised by the continual necessity of applying to parliament for supplies of money, which practically renders it necessary to obtain the sanction of that body to every important public measure.

The crown (q.v.) now in use as the emblem of sovereignty differs considerably in form in different countries of modern Europe; but in all cases it is distinguished from the coronets of the nobility in being closed above. The royal crown of Great Britain is described under article CROWN. The helmet placed by the sovereign over his arms is of burnished gold, open-faced, and with bars. For the arms of the sovereign, see GREAT BRITAIN.

KING: co., Tex. See page 891.

KING, a co. in the w. central part of Washington territory, bounded e. by the Cascade mountains and w. by Admiralty inlet and Puget sound; pop. '80, 6,910. It is drained by the Snoqualmie, Cedar, and Green rivers. The surface is diversified with mountains, vales, and forests, and the soil is for the most part fertile, producing wheat, oats, hay, and potatoes. The county is larger than the state of Delaware. Capital, Seattle.

KING, CHARLES, LL.D., 1789–1867; b. New York; son of Rufus; educated at Harrow, England, and at Paris, while his father was minister to Great Britain; and served afterwards for a time in a banking-house in Amsterdam. In 1806 he returned to New York, and in 1810 entered into business with his father-in-law, Mr. Archibald Gracie. He was a volunteer soldier in the war with England in 1814, and was afterwards sent as commissioner to that country to investigate the case of the Dartmoor prisoners. He was associate editor with Verplanck of the *New York American*, 1823–27, and sole editor 1827–47. After this he was for a time associated with James Watson Webb as editor of the *Courier and Enquirer*. He was appointed president of Columbia college in 1849, and held that office until 1864. He died at Frascati, Italy. He was the author of a *History of the New York Chamber of Commerce*, of a sketch of the Croton aqueduct, and of many pamphlets.

KING, CLARENCE. See page 891.

KING, EDWARD, b. Mass., 1848; son of a Methodist minister; was privately educated, but in this manner went through the entire course of study in vogue at Williams college. When only 17 years of age he entered the office of the Springfield (Mass.) *Union* as a compositor, becoming almost immediately local editor. The late Samuel Bowles, editor of the Springfield *Republican*, noticed his work, and being impressed with his ability sent him to Europe as a special correspondent. This was in 1867, and on his return Mr. King became literary editor of the *Republican*. In the following year he edited the *Evening News*, an offshoot of the *Republican*. In 1869 he was again in Europe as special correspondent of the Boston *Journal*, and in that capacity followed the Franco-Prussian war and the incidents of the Paris commune in 1870. Until 1872 Mr. King was a member of the *Journal* editorial staff; he then traveled through the south, accompanied by an artist, and contributed to *Scribner's Monthly* a series of illustrated articles on that section. During this journey he traveled 25,000 m., of which 1200 was on horseback. In 1875 he went to Europe again, and from Paris

corresponded with American papers. The following year he represented the Boston *Journal* at the Centennial exhibition in Philadelphia; and in 1877, being once more in Europe, wrote letters for the American press from the seat of war in Bulgaria. Mr. King has published in book form—*My Paris*, 1868; *Kentucky's Love*, a novel, 1872; *The Great South*, 1874; and *French Political Leaders*, 1876.

KING, J. Floyd. See page 891.

KING, James M. See page 891.

KING, John Alsop, 1788–1868; b. New York; eldest son of Rufus; educated at Harrow, England, and at Paris, while his father was minister at the court of St. James; served as a cavalry officer in the war of 1812–15 with England; was a member of the New York assembly in 1819, and of the senate in 1823. He was secretary of legation in England in 1826, and subsequently *chargé d'affaires* there; a member of congress, 1849-51; governor of New York, 1857–58; delegate to the "peace convention" of 1861 in Washington, and to the New York constitutional convention of 1867. Died at Jamaica, L. I.

KING, John Crookshanks, b. in Scotland, 1806; was a machinist by trade, and coming to this country engaged in manufactures in the west for a number of years. He afterwards removed to New England and devoted himself to sculpture.

KING, John P., b. Ky., 1799; was soon afterwards taken by his father to reside in Bedford co., Tenn., where he remained until 1815, when he removed to Georgia, where he studied law, and was admitted to the bar at Augusta in 1819. In 1822 he went to Europe, where he was engaged for two years in completing his education. Returning home he soon attained eminence in his profession, and in 1833 was a delegate to the Georgia constitutional convention, in which he served with distinction. In 1834 he was elected by the democratic party to the U. S. senate, serving until 1838, when, on account of differences with his party, he resigned his seat and returned to the practice of his profession. In 1841 he was elected president of the Georgia railroad and banking company.

KING, Jonas, D.D., 1792–1869; b. Mass.; graduated at Williams college, 1816; Andover seminary, 1819. On leaving the seminary he engaged in home-mission work in Massachusetts; also in Charleston, S. C., where he was ordained as an evangelist. In preparation for mission work in the east he went to Paris and studied Arabic under De Sacey. From 1823 to 1825 he traveled in Egypt and Syria with the rev. Pliny Fisk under the patronage of the American board, distributing the Scriptures and preaching Christ. He returned to America in 1827. In 1828 he relinquished the professorship of languages in Amherst college which he had held for some years, declined a similar one from Yale, and acceded to a request from the ladies' Greek committee of New York that he would go to Greece as their missionary. They had been stirred by his recitals of the sufferings of that country from Turkish despotism; had prepared a shipload of food and clothing, and wished to send food for "the soul as well as the body." He reached Poros, Greece, July 28. Supplies for the body and Christian books and instruction seemed for a time to be received with almost equal eagerness. Every day persons came begging for the New Testament, sometimes the number of applicants reaching 150. Sometimes a school of boys with their teacher would come for this purpose before breakfast. In one instance a bishop asked for New Testaments for the use of his priests, that they might "be able to teach the people properly." Dr. King made known the gospel in the streets, under a fig tree, or wherever he could find hearers. People would assemble in companies of fifty or sixty and listen with eagerness. Even the priests would give attention and approve what was said. The president of Greece seemed to look favorably on his efforts. He visited many important places, everywhere preaching, and promoting the interests of education and morality, and, where there was need, relieving want. There were many who testified to the value of his instructions and his aid in their own experience. In 1829 Dr. King married Miss Mengous, a Greek lady of influence. In 1830, at the request of the American board, his mission was transferred to its care. When Dr. King established schools, it was with the condition that the Scriptures should be studied in them. In 1855 the minister of education wrote to all the teachers of Greece commending the reading of the Scriptures as tending to regulate morals and citing the teachings of St. Chrysostom in their favor. Meanwhile the hierarchy of the Greek church had not looked on with indifference. As early as 1835 a member of the "holy synod" preached against the American schools, threatening with excommunication those who sent children to them. The minister of the interior, however, said: "Go on with your work; it is good." In 1844, being accused in some of the Greek papers of speaking against the doctrines of the church, Dr. King answered in the same papers, showing by quotations that Chrysostom, Basil, and Epiphanius taught what he taught. In 1845 there was issued against him, by both the Greek synod at Athens and the so-called "great church" at Constantinople, "an excommunication from the whole community." These were sent to churches throughout Greece and Turkey. In 1846, at the instigation of the Greek synod, he was brought before the Areopagus charged with having in one of his books reviled the mother of God, the holy images, etc. When asked, "Have you any defense to make?" he answered: "Those things in my book with regard to Mary, with regard to transubstantiation, and with regard to images, *I* did not say; but the most brilliant luminaries of the eastern church, St. Epiphanius, St. Chrysostom the great, and others, say them." He was condemned to be tried before the felon's court in

Syra. An inflammatory pamphlet was circulated in advance, with the avowed sanction of a high priest. His life was threatened, the governor of Syra declared himself unable to protect him. Through the influence of several distinguished lawyers, also of the minister of foreign affairs and the minister of justice, this trial did not take place. In another instance a conspiracy of fifty men against his life was thwarted. In 1847 an accusation brought against him, though proved false, caused such an excitement that the king advised his leaving the country for a time. He therefore visited various parts of Europe, returning in 1848 to his work. In 1851 he was appointed consular agent for the United States. A flag for the use of the consulate was received by him, and the same evening it became necessary to unfurl it in the presence of a mob which threatened violence. In Mar., 1852, he was again brought to trial on a charge of reviling the God of the universe and the Greek religion, and condemned to fifteen days' imprisonment and to leave the country. He protested in the name of the U. S. government. Soon afterwards George P. Marsh, minister-resident of the United States at Constantinople, was ordered by his government to investigate the whole affair, which he did. In 1854 the king of Greece issued an order freeing Dr. King from the penalty of exile. He remained at his work as usual. In 1857 he attended the meeting of the evangelical alliance at Berlin. In 1864, after an absence of three years, he returned to Greece, where his useful life closed. His original works, in Arabic, Greek, and French were ten in number, some of them being widely read and translated into other tongues. Eleven others he revised and carried through the press. He distributed 400,000 copies of school books and Scripture portions in Greece and Turkey, besides what he scattered during his travels in other parts of Europe, and in Palestine, Syria, and Egypt. But perhaps his most remarkable quality was a happy tact in using conversation as a vehicle of religious instruction and impression. Greece has paid many tributes to his worth and service, and will yet show their large results.

KING, Peter, Lord, 1669–1734; studied at the university of Leyden, read law in the Inner Temple, and was called to the bar. In 1699 he entered parliament, where he was one of the managers of the impeachment of Dr. Sacheverell. George I. made him chief-justice of the common pleas, and in 1725 he became lord chancellor. He resigned in 1733.

KING, Philip Parker, 1793–1855; b. on Norfolk island, Australasia; entered the British navy in 1807; went on an exploring expedition to Australia in 1817, and to South America in 1825. In 1854 he was made rear-admiral of the blue, the first native Australasian who attained that rank in the profession.

KING, Preston, 1806–65; b. Ogdensburg, N. Y.; was educated at Dartmouth college, and afterwards studied law, which he practiced in the interior of his native state. In 1830 he was an editor in St. Lawrence co., supporting gen. Jackson, then president. He was made postmaster at Ogdensburg, and afterwards a member of the state assembly, member of congress, and U. S. senator 1857–63. In 1853 he had renounced the principles of the democratic party, and he continued to act with the republicans thereafter. In 1865 he was appointed by president Johnson collector of the port of New York, and during the same year, while temporarily deranged, leaped from a Jersey City ferry-boat and was drowned.

KING, Rufus, 1814–76; b. New York; son of Charles; graduated at West Point military academy in 1833; remained in the army for 3 years, being commissioned as brevet second lieut. of engineers. In 1836 he resigned his commission in the regular army to take a position as engineer on the Erie railway, holding it for 2 years. From 1839 to 1843 he was adjt.gen. of the state of New York. He was at one time on the staff of the *Albany Evening Journal*, and in 1839 was editor of the *Albany Advertiser*, conducting it for 6 years, and on removing to Milwaukee took the same position on the *Milwaukee Sentinel*, which he filled from 1845 to 1861. In 1861 he was appointed U. S. minister to Rome. He returned to this country during the war of the rebellion, and was present, as a brig.gen. of volunteers, at the battles of Fredericksburg, Groveton, Manassas, Yorktown, and Fairfax in command of a division. In 1863 he resumed his former position at Rome, remaining there until 1867.

KING, Rufus, ll.d., 1755–1827; b. Scarborough, Maine. After his graduation from Harvard college he read law with chief-justice Parsons, and was admitted to the bar in 1780. In 1782 he took his seat in the legislature of Mass., to which he was several times re-elected. In this capacity he supported a measure which gave congress power to lay an impost of 5 per cent. He became a member of the continental congress in 1784 and introduced a resolution prohibiting slavery in the territories. The substance of this resolution was subsequently incorporated by his colleague, Nathan Dane of Mass., into the famous ordinance of 1787. He took a prominent part in the proceedings of the convention which formed the U. S. constitution, and, in the convention called in Massachusetts to decide upon the adoption or rejection of the new constitution, he was one of the most distinguished defenders of that instrument. In 1788 he removed to New York, from which state he was elected senator in 1789, and at once took a high place as a leader of the federalists. King was re-elected to the senate in 1795, and in 1796 he accepted from president Washington, who had previously offered him a place in his cabinet as

secretary of state, the responsible post of minister to England. He distinguished himself highly in the diplomatic service, in which he continued for eight years. In 1813 and again in 1819 he received the honor of an election to the U. S. senate by a legislature a majority of which was republican and strongly opposed to his politics. During the war with England Mr. King did not side with the extreme federalists, but supported the administration in such measures as seemed to him to be for the general good. After the war he opposed the bill for the creation of a U. S. bank, and he was strongly opposed to the admission of Missouri to the union. Mr. King retired from the senate in 1825 and re-entered public life only to accept for a time the post of ambassador to England during the administration of John Quincy Adams, but owing to ill-health he remained but a short time.

KING, Thomas Starr, 1824–64; b. New York; an eminent Unitarian minister; studied theology in intervals of leisure from necessary employment, and preached his first sermon at Woburn, Mass., in 1845. The next year he became pastor of the Univ. church which his father had served, in Charlestown, and remained in that charge until he removed to Boston, where, for 12 years, he was pastor of the Hollis street church. Besides fulfilling the duties of his profession, and acquiring a high reputation as an eloquent, fervent, and spiritual preacher, Mr. King gained wide popularity as a public lecturer, in which capacity he found constant employment from 1845 to 1860. In the latter year he received a call to the only Unitarian church in San Francisco, and, having accepted it, began his ministrations there in the summer. The outbreak of the rebellion afforded Mr. King an opportunity of manifesting the firmness of his loyalty, and of exercising a powerful influence toward the national government among the people of California, a state which, in the beginning, was at least lukewarm in its devotion to the union. His stirring speeches, made in different parts of the state, revived the drooping patriotism of the people, many of whom were from the southern states, while others were adventurers who were bound by no ties of attachment whatever, national or local. He specially employed his almost matchless eloquence in soliciting aid for the noble purpose undertaken by the U. S. sanitary commission, and to him was chiefly due the splendid gift of California to that cause. Mr. King's death, which occurred in San Francisco, was sudden, and was deeply deplored throughout the country. Besides his ability as an orator, he was an agreeable and striking writer. He wrote *The White Hills: their Legends, Landscapes, and Poetry*, 1859, and contributed frequently to reviews and other periodicals.

KING, William, d.d., 1650–1729; graduated from Trinity college, Dublin, and took orders in 1674. In 1688 he was made dean of St. Patrick's; in 1691 bishop of Derry; and in 1702 archbishop of Dublin. He wrote several theological books, and one of them, his treatise *De Origine Mali*, was assailed by Bayle and Leibnitz.

KING, William Rufus, 1786–1853; b. N. C.; graduated from the university of North Carolina in 1803, and was admitted to the bar in 1806. He served for several years in the legislature of his native state, and in congress, 1812–16, where he was a strong advocate of the war with England. He was attached to the U. S. legation 1816–18, first at Naples and afterwards at St. Petersburg. On his return he removed to Alabama, and was a member of the convention which drew up a constitution for the new state, of which in 1819 he was elected the first senator. He remained in the senate till 1844, when president Tyler appointed him minister to France, where he remained till 1846. In 1848 he went back to the senate, of which in 1850 he was elected president upon the succession of vice-president Fillmore to the presidency. In 1852 he was elected vice-president upon the democratic electoral ticket with Franklin Pierce as president. Early in 1853 he went for health to Cuba, where he was permitted to take his oath of office. He returned early in April and died in the same month.

KING AND QUEEN, an eastern co. of Virginia; bounded on the s.w. by the Mattapony river; 330 sq.m.; pop. '80, 10,502. having an undulating surface and valuable marl beds. Corn and wheat are the staple products. Capital, King and Queen Courthouse.

KING-AT-ARMS, or King-of-Arms. The principal heraldic officer of any country. There are four kings-at-arms in England, named respectively Garter, Clarencieux, Norroy, and Bath, but the first three only are members of the college of arms.

Garter principal king-of-arms was instituted by Henry V., 1417 a.d., for the service of the order of the Garter. His duties include the regulation of the arms of peers and the knights of the Bath. In the capacity of king-of-arms of the order of the Garter, he has apartments within the castle of Windsor, and a mantle of blue satin, with the arms of St. George on the left shoulder, besides a badge and scepter. His official costume as principal king-of-arms of England is a surcoat of velvet, richly embroidered with the arms of the sovereign, a crown, and a collar of SS. The insignia of the office are borne by Garter impaled with his paternal arms, the latter on the dexter side of the shield. These are argent, St. George's cross, on a chief gules a ducal coronet encircled with a garter, between a lion of England on the dexter side and a fleur-de-lis on the sinister, all or.

Clarencieux and Norroy are provincial kings-of-arms, with jurisdiction to the s. and

n. of the Trent respectively. They arrange and register, alone or conjointly with Garter, the arms of all below the rank of the peerage. The official arms of Clarencieux are argent St. George's cross, on a chief gules a lion of England ducally crowned or. Those of Norroy are argent St. George's cross, on a chief per pale azure and gules a lion of England ducally crowned between a fleur-de-lis on the dexter side, and a key, wards in chief, on the sinister, all or. Both provincial kings have a crown collar and surcoat. The crown is of silver gilt.

The crown of a king-of-arms is of silver gilt, and consists of a circle inscribed with the words, *Miserere mei Deus secundum magnam misericordiam tuam*, supporting 16 oak leaves, each alternate leaf higher than the rest. Within the crown is a cap of crimson satin turned up with ermine, and surmounted by a tassel wrought of gold silk. Kings-of-arms were formerly entitled to wear their crowns on all occasions when the sovereign wore his; now they assume them only when peers put on their coronets. The installation of kings-at-arms anciently took place with great state, and always on a Sunday or festival-day, the ceremony being performed by the king, the earl-marshal, or some other person duly appointed by royal warrant.

Bath king-of-arms, though not a member of the college, takes precedence next after Garter. His office was created in 1725 for the service of the order of the Bath. On Jan. 14, 1726, he was constituted Gloucester king-of-arms (an office originally created by Richard III., in whose reign it also became extinct), and principal herald of Wales. He was at the same time empowered, either alone or jointly with Garter, to grant arms to persons residing within the principality.

The chief heraldic officer for Scotland is called Lyon king-of-arms (q.v.), who since the union has ranked next to Garter. His title is derived from the lion rampant in the Scottish royal insignia, and he holds his office immediately from the sovereign, and not, as the English king-at-arms, from the earl-marshal. His official costume includes a crimson velvet robe embroidered with the royal arms, a triple row of gold chains round the neck with an oval gold medal, with the royal arms on one side and St. Andrew's cross on the other; and a baton of gold enameled green, powdered with the badges of the kingdom. His crown is of the same form with the imperial crown of the kingdom, but not set with stones. Before the revolution he was crowned by the sovereign, or his commissioner, on entry on office.

There is one king-of-arms in Ireland, named Ulster. In the 14th c. there existed a king-of-arms called Ireland, but the office seems to have become extinct, and Edward VI. created Ulster to supply the deficiency. His arms are argent, St. George's cross, upon a chief gules a lion between a harp and a portcullis, all or. The royal ordinance relative to the order of St. Patrick, issued May 17, 1833, declares that in all ceremonials and assemblies Ulster king-of-arms shall have place immediately *after* the Lyon.

KINGBIRD, one of the members of the great order of *insessores*, or perchers. It belongs to the *colopteridæ*, or fly-catcher family, and is included in the genus *tyrannus*, its specific name being *T. Carolinensis* (Baird). It is sometimes called the bee martin, and inhabits that part of North America e. of the Rocky mountains. It is 8½ in. long, with a wing about 5 in.; color above, dark bluish ash; breast and throat, pale bluish ash; top and sides of head, bluish black; concealed crest, vermilion in the center, white behind, and an orange tint before. It is very courageous, attacking hawks, crows, and other large birds. It is an unerring insect catcher, and is one of the most useful, beautiful, and interesting of our birds.

The gray kingbird, *T. Dominicensis* (Rich), is a native of the West Indies, but visits the southern states; body 8 in., wing 4¾. Another species of this genus is *T. verticalis*, or Arkansas fly-catcher, of western North America, 8½ in. long, wing 4½ in. long; general color ashy, yellow beneath, tail nearly black, wings brown, crest vermilion in center, yellowish before and behind, and very much resembles the bee martin. There are also Cassin's fly-catcher of Mexico and Texas, *T. vociferans*, nearly 9 in. long; and Conche's fly-catcher, *T. Conchii* (Baird), of Mexico, 9 in. long, with a wing of 5 in. All these are useful and beautiful.

KING-CRAB, *Limulus*, a genus of *crustacea*, ranked by Cuvier among the *entomostraca;* but so widely differing from all the rest of the *crustacea*, that Milne-Edwards makes it a subclass by itself. The head and thorax are united together, and are covered by a shield, which is convex above and concave beneath. The abdomen is more or less hexagonal, no division into rings appears in it, and it is covered by a shield not so broad as that of the head and thorax. On each side it has along the margin six movable spines directed backward and outwards; and attached to it is a tail, which forms a long and strong dagger-like spine, sometimes exceeding in length the whole body of the animal. The legs are not large enough to be visible beyond the shield when the animal moves along the ground.—These remarkable animals are found only on the shores of tropical Asia, the Asiatic Archipelago, and tropical America. They feed on animal food, and are said to be themselves less agreeable food than crabs or lobsters. Some of them exceed 2 ft. in length, and the strong and jagged spine is a formidable weapon. In some of the Asiatic islands the spine is often used for pointing arrows. In tropical America the king-crab is called *casserole fish*, and the shell is used as a ladle. The

number of species of king-crab is not great.—Fossil species are pretty numerous. Trilobites are supposed to have been allied to the *limuli*.

KINGFISH. See OPAH (*ante*), and LAMPRIS.

KINGFISHER, *Alcedo*, a genus of birds of the order *insessores* and family *halcyonidæ*. The name is often extended to the whole family; the only British and almost the only European species of which is the common kingfisher (*A. ispida*), a bird not much larger than a sparrow, in brilliancy of color rivaling the finest tropical birds—blue and green being the prevailing colors. The kingfisher is generally distributed over Britain and Ireland, but is not so common in Scotland. It is not a bird of passage, although in many places it appears only as an occasional visitant. It is found in all parts of Europe except the most northern, and over a great part of Asia and Africa. It frequents the banks of rivers and streams, and is often seen flying near the surface of the water. Its food consists of small fishes, such as minnows, sticklebacks, and trout or salmon fry, and of leeches and water-insects. When it has caught a fish it often kills it by beating on a branch, and always swallows it head foremost. The indigestible parts are afterwards disgorged.

It seems probable, although not quite certain, that the kingfisher is the *halcyon* of the ancients, about which many wonderful fables were current among them: of its having power to quell storms, of its floating nest, and the stillness of the winds during the time necessary for its safety, etc. Shakespeare makes repeated allusion to the popular notion that if the stuffed skin of a kingfisher or halcyon is hung up by a thread, the bill will always point to the direction from which the wind blows.

The BELTED KINGFISHER (*alcedo halcyon* or *ceryle halcyon*) of North America is a much larger bird than the kingfisher of Britain, being fully 12 in. in length. It is common on most of the rivers of North America to 67° n. lat. in summer, but migrates southward in winter, and is then to be found in the West Indies. Its colors are dull when compared with those of the common kingfisher.

Many species of kingfisher are found in the warmer parts of the world. Some of them, forming the genus *ceyx*, want the hind toe. The common European kingfisher may be regarded as the type of the family, which belongs to the group called *syndactyle birds*, and is characterized by the much-united toes. The form is bulky; bill long, straight, quadrangular, sharp and heron-like; wings, tail, and legs short, and feet small.

KING GEORGE, a co. of Virginia, between the Potomac and Rappahannock rivers; 176 sq.m.; pop. '80, 6,397. The surface is uneven, but much of the soil is fertile. Corn and wheat are the staple products. Valuation of real and personal estate, $1,511,329. Capital, King George Court-house.

KING GEORGE'S SOUND, an inlet at the s.w. angle of Australia, which is an excellent roadstead, and contains two landlocked recesses, Princess Royal and Oyster harbors. On the former stands Albany, the coaling depôt of the Peninsular and Oriental company's steamers.

KINGKITA'O, or HANCHING. See SEOUL.

KINGLAKE, ALEXANDER WILLIAM, was b. at Taunton, Somersetshire, in 1802, studied at Eton and Trinity college, Cambridge, and—having chosen the law as a profession—was called to the bar in 1837. His practice soon became very great; nevertheless, he found time to make a tour in the east of some length, the result of which was a book entitled *Eothen*, descriptive of his adventures and impressions. It was published in 1844, and at once attained an astonishing popularity, passing through many editions both in England and America, and being also extensively translated on the continent. The graceful vigor and liveliness of the style have made *Eothen* a model for subsequent works of a similar kind, but none have yet reached the exquisite talent of the original. In 1857 Kinglake entered parliament as member for Bridgewater. Vols. I. and II. of his *Invasion of the Crimea* appeared in 1863, and fully sustained his literary reputation; but the virulent antipathy shown towards the French emperor and all the actors in the *coup d'état* was not calculated to beget confidence in him as a historian. Vols. III. and IV. were published in 1868, Vols. V. and VI. 1875–80. In 1868 he was again elected for Bridgewater, but on petition was unseated.

KINGLET, a bird belonging to the thrush family, sometimes called golden-crowned warbler and wren. It is a permanent resident of Great Britain. Its color above is a yellowish olive-green; below, a yellowish-gray, while the crest is orange-yellow, bordered with black. It has a soft and pleasing song, frequents fir-woods, builds a beautiful cup-like nest, which it hangs on the twigs of a tree. It is very bold in defense of its young. Two nearly allied species of the same genus (*regulus cristatus*) exist in North America, and are known as the ruby-crowned and golden-crested kinglet or wren.

KINGMAN, a s. co. in Kansas, drained by Chikaskia river and the s. fork of the Ninne Seah; 864 sq.m.; pop. '80, 3,714. Capital, Kingman.

KINGPOST. See ROOF.

KINGS, a co. of New York, at the w. end of Long island, and including some small islands along the coast; 72 sq.m.; pop. '80, 599,549. The soil is naturally light, but its proximity to New York makes it exceedingly valuable. Garden products are the prin-

cipal crops. The capital is Brooklyn, the third city in the union in population. The inhabitants of the county, outside of that city, number but 34,670. Valuation of real and personal estate, $700,000,000.

KING'S, a co. in the s. central part of New Brunswick, intersected by the river St. John; 1565 sq.m.; pop. 25,617. Its surface presents hills of a gentle elevation and level, fertile valleys. The Intercolonial railway, and that from St. John to Bangor, cross the county. Capital, Hampton.

KING'S, a co. of Nova Scotia, bordering on the bay of Fundy and on Minas basin; traversed by the Windsor and Annapolis railway; 812 sq.m.; pop. 23,469. The soil is fertile, and there are in some places rich deposits of iron ore. Ship-building is carried on to some extent, but the chief occupation is farming. Capital, Kentville.

KING'S, the easternmost co. of Prince Edward Island; 644 sq.m.; pop. 23,068. Capital, Georgetown.

KING'S BENCH. See QUEEN'S BENCH.

KINGS, BOOKS OF (*Melakim*), the name given to two of the canonical books of the Old Testament. Originally they were but one, and were first separated by the Seventy, by whom they are designated "the third and fourth of the kingdoms"—the books of Samuel forming the first and second. This division was copied by the Vulgate, and passed thence into the general usage of Christendom. The exact titles of these books in the English authorized version are—*The First Book of the Kings, commonly called the Third Book of the Kings*, and *The Second Book of the Kings, commonly called the Fourth Book of the Kings*. They embrace (1) the reign of Solomon, (2) the history of the divided kingdoms of Judah and Israel, (3) the history of the kingdom of Judah after the dispersion of Israel, until the Babylonian captivity—a period of about 570 years in all. The books do not appear to be merely vague compilations from royal annals and other —rather contradictory—sources, as is held by some, but rather the diligent work of a historian—with a clear and distinct tendency—who gathered together all the written and unwritten information, provided it could be made useful for his purpose. The unity of style and language is indeed palpable throughout, nor are any later alterations of consequence apparent. The principal sources quoted are a *Book* [of the Chronicles] *of Solomon*, further a *Book of the Chronicles of the Kings of Israel*, and another *of the Kings of Judah*. The Talmud, and some of the earlier Christian theologians, ascribe it to Jeremiah; this view is also maintained by Hävernick in modern times. Huet and Calmet are in favor of Ezra, but all that can be safely asserted is that the compiler lived during the second half of the captivity and after the death of Joiachin, and probably in Babylon. The spirit of the work is *theocratico-prophetic* in a high degree (its historical fidelity with respect to the political events is generally recognized, but the stories relating to the prophets Elijah and Elisha are by most critics referred to the province of legend); while that of Chronicles (which goes over much the same ground) is held to betray the predominance of priestly influence. One of the best modern commentaries is that by Thenius (Leip. 1845)

KINGS, BOOKS OF (*ante*), were originally one, and, being still one in subject-matter, are naturally divided into three parts: I. The history of the undivided kingdom, from the old age of David to the death of Solomon. The latter days of David; the attempt of Adonijah to obtain the succession; the inauguration of Solomon, by David's command, accompanied with a solemn charge by the father to the son; David's death; Solomon's vigorous administration; his building and dedication of the temple, followed by the organization of its worship and service; his wisdom, commercial prosperity, and renown; his fall into idolatry, and the consequent troubles of his closing years. II. The history of the kingdoms of Judah and Israel to the end of the latter. The accession of Rehoboam, and the secession of the ten tribes; the reigns of Rehoboam over Judah, and Jeroboam over Israel; of Abijam and Asa over Judah; and Nadab, Baash, Elah, Zimri, and Omri, with the accession of Ahab, over Israel; of Jehoshaphat and Jehoram over Judah; and Ahab, Ahaziah, Jehoram, and Jehu over Israel; illustrated by the life and translation of Elijah the prophet, and the beginning of Elisha's work; of Jehoash over Judah, and Jehoahaz and Jehoash over Israel, during the last of which Elisha died; of Amaziah, Uzziah, and Jotham over Judah, and Joash, Jeroboam II., Zechariah, Shallum, Menahem, Pekahiah, and Pekah over Israel; of Ahaz over Judah, and Hoshea over Israel, during whose time Samaria was taken, and the ten tribes were carried captive into Assyria, thus ending the kingdom of Israel. III. The history of the kingdom of Judah to the captivity in Babylon. The reign of Hezekiah, who reformed religion, cast off subjection to the king of Assyria—from whose powerful army he was delivered by divine interposition—and, raised up from impending death, had 15 years added to his life; obscuration of these by elation of heart and consequent folly; the captivity in Babylon foretold; the reigns of Manasseh and Amon, both disgraced by flagrant impiety and crime; of Josiah, illustrated by his early piety, reformation of religion, and whole-hearted zeal for God and the right; of Jehoahaz, Jehoiakim, Jehoiachin, and Zedekiah; the capture of Jerusalem, burning of the temple, and carrying away of the Jews to Babylon.

KINGSBOROUGH, Lord (Edward King), 1795–1837; devoted himself to antiquarian researches, particularly in connection with Mexico. In 1830 he began the publication of his great work on that country, at his own expense, and at a cost exceeding $250,000. Seven volumes of this work appeared during the life-time of the projector, under the title *Antiquities of Mexico, comprising Facsimiles of Ancient Mexican Paintings and Hieroglyphics, together with the Monuments of New Spain by M. Dupaix, with their respective Scales of Measurement and Accompanying Descriptions; the whole illustrated by many valuable inedited MSS.* The two final volumes of this work did not appear until after the death of lord Kingsborough.

KINGSBURY, a s.e. co. of Dakotah, intersected by the Dakotah river; 600 sq.m.

KING'S COLLEGE, Cambridge, was founded in 1441 by Henry VI., for a provost, 70 fellows and scholars, 3 chaplains, with clerks, choristers, servitors, and poor scholars—in all, 140. Its revenues were seriously diminished by Edward IV. The chapel is the work of the three Henries, VI., VII., VIII. The architect is supposed to have been Nicholas Cloos, or Klaus, fellow of the college, and bishop of Lichfield, or, as others say, his father. It is perhaps the finest specimen of perpendicular Gothic in the world. Its internal dimensions are 290 ft. long, 45 wide, and 78 high. There is an inner roof of stone, which, though of enormously massive structure, has, from its proportions, and the beauty of the groining, the most airy and pleasing effect. Under the statutes of 1861 the foundation consists of 46 fellows, and not less than 48 scholars, governed by a provost. Twenty-four of the scholarships are appropriated to the scholars of Eton college. The fellowships are open to all members of the college of sufficient standing. In 1871 a scholarship of £80, tenable for three years, was established for natural science.

KING'S COLLEGE, London, a proprietary institution occupying the east wing of Somerset house, and founded in 1828 on the fundamental principle "that instruction in the Christian religion ought to form an indispensable part of every system of general education for the youth of a Christian community." The college being strictly in connection with the Church of England, church service is a regular part of its routine. The course embraces theology, general literature and science, applied sciences, and medicine. A limited number of matriculated students reside within the walls. The museum contains the calculating-machine of Mr. Babbage and George III.'s collection of mechanical models and philosophical instruments, the latter presented by the queen. There is a school in connection with the college.

KING'S, or Queen's, **COUNSEL** are certain barristers-at-law, in England and Ireland, who have been appointed by letters-patent to be her majesty's counsel. The office is entirely honorary, but it gives a right of preaudience in all the courts, according to the date of appointment. The appointment practically belongs to the lord-chancellor. Though called her majesty's counsel, they are not prevented from being retained and acting for ordinary clients, except that in defending prisoners and acting in suits against the crown, they require a special license from the crown, which is, however, never refused. In Scotland there is no distinction of queen's counsel, but the lord-advocate and solicitor-general are so in reality. The appointment of queen's counsel is for life, but in case of disgraceful conduct, the letters-patent are revoked, as was done in 1862 to Edwin James, who, in 1873, applied in vain for restitution.

KING'S COUNTY, an inland co. of Ireland, is bounded on the e. by Kildare, and on the w. by the Shannon, which separates it from Roscommon and Galway. Area 493,985 statute acres, of which 353,256 are arable and 8,258 in plantations. In 1876, 118,762 acres were under crops, and only 66 were lying fallow. The population has steadily decreased—(1851) 112,076; (1861) 90,013; (1881) 72,852, of whom 64,984 were Roman Catholics, 6,750 Episcopalians, and the rest of other denominations. The surface is in general flat; it includes, however, in the s., a portion of the Slieve Blue Mountains, from which a line of low limestone hills extends n.e. through the center of the county, forming a water-shed between the basin of the Shannon on the w., and those of the Boyne and Barrow on the east. The soil, a light loam of medium depth, resting on limestone gravel, is of average fertility. The Bog of Allen (q.v.) extends from w. to e. the whole length of the county. The Grand canal traverses the north portion of this county. Notwithstanding great tracts of bog, the climate is not unhealthy. Two members are returned to the imperial parliament for the county. In the n.w. of the county are the ruins of the abbey Clonmacnoise, founded in 548, exceedingly rich in ancient monumental remains, and forming one of the most interesting of those ruined ecclesiastical structures in which Ireland is so rich. The county contains also many other religious foundations, as well as numerous feudal castles, chiefly of the Elizabethan period, and some of them still inhabited.

KING'S EVIDENCE (or Queen's), the name given to a person who, having been an accomplice in some crime, has confessed, and offered to give evidence, and make full confession. The usual practice of the crown, in such cases, is to pardon the person so acting, though he is not absolutely entitled to a pardon; and an application is generally made to the judge, to admit the party as a witness, on the trial of the fellow-criminals. A similar practice exists in Scotland, the public prosecutor having the power and discretion to admit the confessing party. See State's Evidence.

KING'S EVIL. See SCROFULA.

KINGSLEY, CALVIN, D.D., LL.D., 1812–70; b. N.Y.; graduated at Allegheny college in 1841, and in the same year was appointed professor of mathematics in that institution; afterwards Methodist Episcopal pastor at Meadville and Erie, Penn.; in 1856 and 1860 elected editor of the *Western Christian Advocate* at Cincinnati; in 1864 elected a bishop of the Methodist church. In 1869 he was sent upon an episcopal tour to different foreign countries, and died at Beirut, Syria.

KINGSLEY, Rev. CHARLES, late chaplain in ordinary to the queen, was born at Holne vicarage, Devonshire, in 1819. He entered Magdalen college, Cambridge, in 1840, where he highly distinguished himself in classics and mathematics. In 1844 he became curate, and, shortly after, rector of Eversley, in Hampshire. In the same year he published *Village Sermons*, characterized as honest, downright wisdom, conveyed in a plain and simple style. In 1848 appeared *The Saint's Tragedy, or the True Story of Elizabeth of Hungary*, an admirable and truly catholic representation of mediæval piety. The next two or three years of his life were devoted—in company with his friend Mr. Maurice and others—to a series of efforts for the amelioration and Christianization of the working classes. To these efforts may be traced the origin of those co-operative associations in which the workmen are also the masters, the results of which have proved in every way beneficial. His opinions on the social anarchy of modern times are to be found in his *Alton Locke, Tailor and Poet* (1849), a novel of extraordinary power and fascination, the hero of which is sought for in a London workshop. This was followed, in 1851, by *Yeast, a Problem*, in which Kingsley handles, among other questions, the condition of the English agricultural laborer; and in 1853 by *Hypatia, or New Foes with an Old Face*, a most vigorous and brilliant delineation of Christianity in conflict with rude Gothic paganism and the expiring philosophy of Greece in the early part of the fifth century. Both of these works appeared in *Fraser's Magazine.* Two years after, he published *Westward Ho!* probably the greatest of his works. Its glowing pictures of South American forests are said to have excited the admiration of Humboldt, who had himself really *seen* what Kingsley only *imagined.* Other works of his are *Message of the Church to Laboring Men; Sermons on National Subjects, preached in a Village Church; Phaethon, or Loose Thoughts for Loose Thinkers; Alexandria and her Schools; Sermons for the Times; Glaucus, or the Wonders of the Shore; The Heroes, or Greek Fairy Tales; Two Years Ago; The Water Babies; Good News of God; Hereward, the Last of the English* (1866); *The Hermits* (1867); *How and Why* (1869); *At Last, a Christmas in the West Indies* (1871). He was appointed professor of modern history at Cambridge in 1859, and, after resigning that post, was made, in 1869, canon of Chester. He died in 1875. A biography by his wife appeared in 1876.

KINGSLEY, HENRY, 1830–76; brother of Charles; was educated at Oriel college. Returning to England in 1858 from Australia, he published his first novel, *Recollections of Geoffrey Hamlyn*, which was followed by a number of others.

KINGSLEY, JAMES LUCE, LL.D., 1778–1852; b. Conn.; graduated at Yale college in 1799; was tutor there from 1801—5, librarian from 1805, and professor of Hebrew, Greek, Latin, and ecclesiastical history from 1805. Among his works are a *History of Yale College;* a *Life of President Stiles;* and editions of *Tacitus* and *Cicero de Oratore.* He was an accomplished scholar and writer, and contributed many valuable articles to the periodical literature of his time.

KINGSLEY, WILLIAM C. See page 891.

KING'S LYNN. See LYNN.

KING'S MOUNTAIN, BATTLE OF. This range, which crosses the border line between North and South Carolina, in Gaston and York counties, has given its name to an important battle of the revolution, Oct. 7, 1780. The British were commanded in this action by lieut.col. Ferguson, and the Americans by col. Benjamin Cleaveland, the latter being the "mountain men" of Georgia and the Carolinas, while the opposing force was composed partly of regulars and partly of tory recruits, a most desperate class of men. The engagement took place on an elevation, a spur of the mountain range, and resulted, after an hour's hard fighting, in the total defeat of the British, whose commander was killed. The Americans captured nearly the entire force, the result having an important effect in determining the conclusion of the war in the southern states. The centennial of this battle was celebrated in the neighborhood of King's mountain, Oct. 7, 1880.

KINGS OF ORIENT, THE THREE. See page 891.

KING'S SILVER, an ancient fine paid to the king, in the court of common pleas, in England, on alienation of certain lands.

KINGSTON, a township and village of New York, United States, situated on the w. bank of the Hudson river, at the terminus of the Delaware and Hudson canal, 57 m. below Albany. The township contains 3 villages, 18 churches, 3 banks, 4 newspaper offices, and has a large commerce in coal, stone, ice, lime, and cement. The village was burned in 1777 by sir Henry Clinton. Its population in 1870 was 6,315.

KINGSTON (*ante*), a city, capital of Ulster co., N. Y., on the n. bank of Rondout creek; the e. terminus of the New York, Kingston and Syracuse, and the Wallkill Valley railroads, which are connected with the Hudson River railroad by a steam ferry to

Rhinebeck, on the e. side of the Hudson; pop. '84, 25,000. Kingston was incorporated as a city in 1872, its boundaries being extended so as to include the villages of Rondout and Wilbur. It was chartered by gov. Stuyvesant under the name of Wiltwick in 1661, was first settled in 1665, and incorporated by patent in 1667. The first constitution of the state was adopted here, April 20, 1777. The legislature assembled here in Sept. of that year, but dispersed, Oct. 7, on the approach of a British force under sir Henry Clinton, which afterwards burnt the town. It was soon rebuilt, and in 1805 was incorporated as a village. Rondout, now a part of the city, was incorporated in 1849. Kingston receives an immense amount of coal annually by the Delaware and Hudson canal, and ships to New York vast quantities of stone, brick, lime, and lumber. It has a front of 4 m. on the Hudson, and does a large business in grain, flour, etc. Nearly 50 steamers are owned in the city, and the largest manufactory of cement in the United States is here. It has 24 churches, 1 daily and 4 weekly newspapers, 5 national and 3 savings banks; carriage manufactories, iron foundries, and machine shops; 4 lines of steamers for carrying passengers; excellent city and county buildings; and schools and seminaries of a high order. The N. Y., W. Shore and Buffalo r.r. passes through K.

KINGSTON, a city in the Canadian province of Ontario, lies in lat. 44° 8′ 30″, long. 76° 30′ 1″, on the n.e. shore of lake Ontario, at the mouth of the Cataraqui and of the bay of Quinté, where the waters of the Canadian lakes issue into the St. Lawrence. It is distant from Montreal 198 m.; from Toronto, 165; and from New York, 274. A gathering-place of old to the neighboring Indian tribes, occupied by a French fort from 1673 till 1758, it began to be settled by the British about 1783, was laid out in 1793, was incorporated as a town in 1838, and as a city in 1846. On the union of the two Canadas, in 1840, the seat of government was established at Kingston, but was removed again in 1845. The city has, in consequence, grown more slowly than many others in the new world, but it numbers already among its buildings some of the finest in Canada. Its harbor, sheltered by Wolfe and Garden islands, which lie 2 or 3 m. off, lined with a row of about 20 wharfs, furnished with a grain elevator capable of unloading 3,000 bush. per hour, is always busy, while navigation is open, especially with the transshipment of cargoes between the vessels which ply on the lakes and those of the St. Lawrence and the Rideau canal. The ship-building of Kingston is second in Canada only to that of Quebec. The Canadian Engine and Machinery company manufactures railway rolling-stock on the most approved principles. Besides it there are several large foundries for the manufacture of engines, locomotive and stationary, of agricultural implements, edge-tools, axles, nails, etc. There are also large tanneries and breweries. Besides its outlets by water, Kingston communicates with all parts of the country by the Grand Trunk railway, which passes within 2 m. of the city, and was in 1863 connected with it by a branch line. Next to Quebec and Halifax, Kingston is the most important military position in British America. Queen's university and college at Kingston, incorporated by royal charter in 1841, for the education of a Presbyterian ministry, has since instituted the additional faculties of law and medicine, is now equipped with 11 professors and lecturers, and attended by an average of 150 students. Regiopolis college, no longer open, was a Roman Catholic institution. The recently founded Royal Military college is unique in Canada. In 1862 Kingston became the seat of the new English bishopric of Ontario. Its population in 1883 was 15,000, who return one member to the provincial parliament. The value of the yearly exports and imports for 1872 was: exports, $1,435,400; imports, $7,923,387.

KINGSTON, the commercial capital of Jamaica (q.v.), stands on the n. side of a land-locked harbor, the best in the island, and, for its size, one of the best in the world. It was founded in 1693, after the neighboring town of Port Royal had been destroyed by an earthquake. From this place, afterwards rebuilt, it is separated by its noble haven; while, with Spanish Town, towards the interior, it has, since 1846, been connected by a railway of about 10 m. in length. An irrigation canal is in progress, which will fertilize the plain lying between these two towns. Kingston contains about 32,000 inhabitants. Though the city, as a whole, is like the generality of mere seaports, filthy and disorderly, it yet presents several handsome features. A large square, called the Parade, contains spacious barracks, a Wesleyan chapel, a theater, and some tolerable dwelling-houses. The negro market for fruits and vegetables is described as a lively and interesting scene. The temperature, which is generally oppressive on the immediate margin of the bay, becomes gradually mitigated towards the head of the sloping streets, which rise into the region of the sea-breezes. Most of the trade of Jamaica passes through Kingston.

KINGSTON, or KINGSTOWN, capital of the British island of St. Vincent, in the West Indies, stands on the s.w. coast, with a population of about 5,000.

KINGSTON-ON-HULL. See HULL.

KINGSTON, Penn. See page 891.

KINGSTON-UPON-THAMES, a municipal borough and market t. of England, in the county of Surrey, is situated 10 m. s.w. of London, on the right bank of the Thames, here crossed by two handsome bridges, one of stone, and the other an iron viaduct on the London and South-western branch railway connecting Twickenham with Wimbledon. The county spring assizes are held in Kingston-upon-Thames, alternately with

Croydon and Guildford. Educational and benevolent institutions are numerous; there are flour, cocoa-nut fiber, and oil mills, and brick and tile works. Pop. '81, 19,875. Around the Surbiton station, on the main line of the London and South-western railway, distant about a mile and a half from Kingston market-place, has grown up, since 1838, the elegant suburb of Surbiton, now joined to the town. In the neighborhood are Hampton Court palace, and Bushy and Richmond parks. Numerous Roman remains have been discovered in the vicinity of Kingston-upon-Thames, and during the Saxon period it had already risen into importance. Here, in 838, a great council was held under Egbert of Wessex and Ethelwolf of Kent, and a treaty agreed to; and here also seven of the Anglo-Saxon kings were crowned. The name is said to be derived from the stone on which the ceremony was performed, which stands in one of the streets, inclosed by a railing. Hampton Wick (pop. 2,207) is really part of Kingston-upon-Thames, being connected by the bridge, though situated across the Thames, and in Middlesex.

KINGSTON, Elizabeth Chudleigh, Duchess of, 1720–88; daughter of col. Chudleigh, governor of Chelsea college, England. Her father died when she was a child, leaving his family in poverty. Her remarkable beauty as a girl led to her appointment as maid-of-honor to the princess of Wales, mother of George III. She was privately married in 1744 to capt. Hervey, a grandson of the earl of Bristol, but refused to live with him, and for many years led a dissolute life. In 1769 the duke of Kingston, ignorant of her former marriage, took her to wife, and upon his death in 1773 she succeeded to his immense fortune. An attempt was made by the duke's relatives to set aside the will on the ground of bigamy, of which offense she was declared guilty by the house of lords in 1776; but her right to retain the property was conceded upon the ground that she received it by bequest. She died near Paris.

KINGSTOWN, a thriving and important seaport of Ireland, on the s. shore of Dublin bay, 6 m. s.e. of the city of that name. Previous to 1817, when the harbor-works were commenced, it was merely a fishing village. At the visit of George IV. in Sept., 1821, its former name, *Dunleary*, was changed to Kingstown. The area of the harbor is 250 acres, with a depth of from 13 to 27 feet. The situation of the town, and the invigorating air, have made Kingstown an important watering-place. The mail-packets sail from Kingstown to Holyhead twice a day, and there is regular communication by steamer between it and the principal Irish and British seaports. Coal, iron, and timber are imported, and cattle, corn, lead ore, and granite are exported. About 1450 vessels of 220,000 tons on an average anchor in the harbor yearly. Pop., which, in 1861, had been 11,584, had risen in 1881 to 18,230. The houses numbered 2,964.

KING'S YELLOW is the term applied to a pigment, which is a mixture of orpiment (tersulphide of arsenic) and arsenious acid.

KING-TE-CHING', a t. of China, in the province of Kiang-si, 240 m. s.w. of Hang-chow, on a small river which falls into lake Poyang. It is the principal seat of the manufactnre of porcelain in China, for which, it is said, 500 furnaces are employed. Pop. above 500,000.

KING WILLIAM, a co. of Virginia, lying between the Mattapony and the Pamunkey rivers, about 30 m. n.e. of Richmond; 260 sq.m.; pop. '80, 8,748. The surface is uneven, but the soil is generally fertile, producing grain and tobacco. The Richmond and Chesapeake railroad passes through the county. Capital, King William Court-house.

KING-WOOD, a very beautiful wood, in small pieces, used for ornamental work. It is brought from Brazil, and is believed to be the wood of a species of *triptolomia* (natural order *leguminosæ*, suborder *papilionaceæ*).

KIN'IC or Quinic **ACID** ($2HO,C_{28}H_{20}O_{20}$) is an acid existing in combination with quinia in the bark of the cinchonas.

KINK, a twist in a rope or cord, caused by the tightness of the coil, and a relaxation of pressure in the direction of its length. The best rope, however, rarely kinks.

KINK'AJOU, *Cercoleptes candivolvulus*, a quadruped of the family *ursidæ*, and allied to the raccoons and coatis. By some naturalists it is referred to *viverridæ*. It has six incisors, one canine tooth, and five molars in each jaw, the three hinder molars tuberculous. The kinkajou is larger than a pole-cat, has a yellowish woolly fur, climbs trees, feeds on fruits, honey, etc., as well as on small animals, and from its ravages among the nests of wild-bees is in some countries called *honey bear*. It is a native of the warm parts of America. The negroes have transferred to it the name potto, from a lemurine animal of Africa. It is easily tamed.

KINKEL, Johann Gottfried, a German author, b. at Oberkassel, Aug. 11, 1815. He studied theology at Bonn, and was for some time a distinguished Protestant preacher; but becoming involved in the revolutionary movements of 1848, he was imprisoned in the fortress of Spandau, whence, however, he escaped. Kinkel then went to America, but soon after returned to London, where he has since resided as a public teacher. Both as a poet and as a writer on art, Kinkel holds a distinguished rank. His principal works are—*Predigten über ausgewählte Gleichnisse und Bildreden Christi* (Cologne, 1842); *Gedichte* (Stutt. 1843); *Otto der Schütz, eine Rhein. Geschichte in zwölf Abenteuern* (Stutt. 1843, 9th

edit. 1852), a very beautiful narrative poem; *Die Altchristliche Kunst* (Bonn, 1845), which forms the first part of a still unfinished *Geschichte der bildenden Künste bei den Christlichen Völkern; Die Ahr, Landschaft, Geschichte und Volksleben* (Bonn, 1846); *Nimrod, ein Trauerspiel* (Hamb. 1857).—Kinkel's wife, JOHANNA KINKEL, a distinguished musician, wrote *Acht Briefe über den Clavierunterricht* (Stutt. 1849); and together with her husband, *Erzählungen* (Stutt. 1849). After her death (in 1859) appeared her novel, *Hans Ibeles in London* (Stutt. 1860).

KINNAIRD'S HEAD, a promontory with a light-house, on the n.e. coast of Aberdeenshire, Scotland, near Fraserburg, in lat. 57° 42′ n., long. 2° west.

KINNEY, a co. of Texas, bounded on the s.w. by the Rio Grande river; 1400 sq.m.; pop. '80, 4,487. The soil is not well adapted to agriculture, but affords good pasturage. Water is scarce. Stock-raising is the chief occupation of the inhabitants. Capital, Fort Clark.

KINNEY, WILLIAM BURNET, 1799–1880; b. N. J.; descended of English ancestry in a line eminent for its talents, position, and influence; was designed by his parents for military life, but his love of letters led to a change of purpose. He studied law with Mr.—afterwards chief-justice—Hornblower; edited the *New Jersey Eagle*, in Newark, 1820–25; studied law and medicine in New York in 1825; and was one of the founders of the mercantile library. Made a public profession of religion, and began the study of theology, with a view to the ministry. His health being impaired, he returned to Newark in 1830, and devoted himself to literary and educational pursuits; was one of the founders of the Newark public library; took an active part in promoting the establishment of the American lyceum, and the introduction of the system of free schools into the state. He undertook the management of the *Newark Daily Advertiser*, which he edited for many years with great ability; received in 1836 the honorary degree of master of arts from Princeton college, of which in 1840 he was elected a trustee. In 1850 he was appointed by president Taylor, minister-resident at the court of Sardinia, where he rendered important aid to Cavour and his court in establishing the liberal institutions of Italy. Upon the expiration of his term of office he retired to Florence, in order to be with friends devoted to literature and art, among whom were the Brownings and the Trollopes, with Hiram Powers and other American artists. Returning home after the close of the late war, he devoted himself to the preparation of the material he had for many years accumulated for a history of Tuscany and the Medici family, but did not live to complete the work. Mr. Kinney was a man of splendid intellectual powers, of high literary culture, a brilliant conversationalist, and though at one time skeptical through the influence of German rationalism, possessed in after-life a firm belief in the Christian religion.

KI'NO, an astringent substance, resembling catechu (q.v.) and gambir (q.v.), the concrete exudation of certain tropical trees, especially of *pterocarpus marsupium*, a native of the mountains of Coromandel, which yields EAST INDIAN KINO, and of *P. erinaceus*, a native of Gambia, which yields AFRICAN KINO. The genus *pterocarpus* belongs to the natural order *leguminosæ*, sub-order *papilionaceæ*, and has a 5-toothed calyx, and an irregular, nearly orbicular one-seeded pod, surrounded with a wing.

East Indian kino is the kind which now chiefly occurs in commerce, and is the ordinary kino or *gum kino* of the shops. It is in small angular glistening fragments, the smaller reddish, the larger almost black. Thin pieces are ruby red. It is brittle and easily powdered, has no smell, but has a very astringent taste. BENGAL KINO is a similar astringent substance, produced by *butea frondosa*. See BUTEA. It has been found capable of the medicinal uses of true kino. BOTANY BAY KINO is the produce of *eucalyptus resinifera*. See EUCALYPTUS.

The astringency of kino is mainly due to its containing tannic and catechuic acid, and in consequence of this property it is employed in medicine in certain forms of diarrhea (especially when a flux seems to be kept up by want of tone in the intestinal capillaries), the best mode of prescribing it being as *compound kino powder*, which is a mixture of kino, cinnamon, and opium, and the dose for an adult ranging from ten grains to a scruple. There is also a *tincture of kino*, which, when properly diluted with water, forms an excellent gargle for relaxation of the uvula.

Kino is employed to a considerable extent in the East Indies as a cotton dye, giving to the cotton the yellowish-brown color known as nankeen.

KINROSS'-SHIRE, after Clackmannanshire, the smallest county of Scotland, lies between the counties of Perth and Fife. Area 49,812 acres. Pop. '81, 6,697. It is 12 m. in length from e. to w., and about 10 m. in breadth. Of its entire area, 30,000 acres are arable, 3,000 in wood, and 4,500 under water. See LOCH LEVEN. Its surface is elevated and gently undulating; its boundaries are hilly, with occasional level openings. On the n. and n.w. are the Ochil hills; on the n.e., the Lomonds; and on the s.e. and s., Benarty and the Cleish hills. The streams flow into Loch Leven (q.v.), and issue by the river Leven. The soil inclines to gravel, but is clayey in the districts n. and w. of the loch. Excellent pasture occurs on the moorlands. For the year 1878 the total acreage under all kinds of crops, bare and fallow grass, was 31,268; under corn crops, 7,622; under green crops, 3,813; the number of cattle returned was 5,509; sheep, 25,181; pigs,

551. This county unites with that of Clackmannan, and with portions of Perthshire, in sending a member to parliament. The capital of the county is the town of Kinross, with a population (1871) of 1926, who are employed chiefly in the weaving of tartan shawls, and in spinning, scouring, and dyeing.

KINSALE', a municipal and parliamentary borough and seaport of Ireland, in the county of Cork, is at the head of Kinsale harbor, which is formed by the estuary of the river Bandon, 14 m. s.s.w. of Cork. A railway to Cork was opened here on May 16, 1863, and the foundation-stone of a large marine hotel, with floating baths attached, was laid on the same day. The harbor, which is landlocked, is about 2 m. long, half a mile in average breadth, and is capable of containing 300 ships. Kinsale exports agricultural produce, and imports coal, iron, and timber; its trade, however, owing to the neighborhood of Cork, is small. Valuable fisheries, estimated at £500 per week in value, are carried on in the district. On the Old Head of Kinsale, a promontory stretching southward into the Atlantic, is a light-house, seen from a distance of 23 nautical miles. Pop. '81, 5,998.

KINTYRE'. See CANTIRE.

KIO'LEN, or KJOLEN, an extensive plateau in Scandinavia (q.v.).

KIOSK', a small ornamental pavilion, much used in India in the decoration of the tombs, ghâts, dams, and other works. It consists of a dome, supported on four or more detached columns, the space under the dome being left open, like the open niches under canopies in Gothic architecture.

KIO'TO. See MIAKO.

KI'OWA, a s. w. co. of Kansas, divided up, 1874–75, between Douglass, Edwards, and Comanche counties. Original area, 900 sq. m.

KI'OWAS, or KIOWAYS, an Indian tribe of the Shoshone family, numbering about 1,150, living upon a reservation in the Indian territory, and partly civilized. They were very warlike and intractable, and have given the U. S. government much trouble.

KIP, WILLIAM INGRAHAM, D.D., b. N. Y., 1811; graduated at Yale in 1831; ordained deacon in the Protestant Episcopal church in 1835; was rector of St. Peter's, Albany, 1838–53, and in the latter year elected bishop of California. Among his works are *The Lenten Fast; Early Jesuit Missions in North America; Christmas Holidays in Rome; Domestic and Religious Life in Italy;* and *The Catacombs of Rome.*

KIPPIS, ANDREW, D.D., 1725–95; b. Nottingham, Eng. He was educated in the theological seminary of Dr. Doddridge at Northampton, and for several years was a Unitarian pastor at Boston in Lincolnshire and Dorking in Surrey. In 1753 he removed to London and became minister of the Unitarian chapel of Prince street, Westminster. In 1763 he accepted the position of master of Coward's theological seminary; he held also a similar place in the Unitarian institution at Hackney. His most important works are his *Biographia Britannica* (5 vols.) and a *Life of Capt. James Cook.* He edited the works of Dr. Nathaniel Lardner and Dr. Doddridge.

KIPTCHAK', or KEPTCHAK, a term which, in the middle ages, designated that vast territory stretching, n. of the Caspian sea, from the Don to Turkistan, and occupied by the Kumans and Polovises. This tract formed one of the four empires into which the huge dominion of Genghis Khan was divided, and was the portion of his eldest son Jûjy, under whose son and successor, Batû Khan, it became the terror of western Europe, and held Russia in iron subjection from 1236 till 1362. Batû also conquered Bulgaria, and invaded Hungary, Austria, and eastern Germany, but made no permanent conquests in this direction. This extensive empire was dismembered towards the end of the 15th c., and gave rise to the khanats of Kazan, Astrakhan, and Krim-Tartary. The Mongols of Kiptchak were also known as the "Golden Horde." Ruins of villages are to be seen in many places, especially near the Volga, and have been visited and described by Pallas, Klaproth, Göbel, etc. They no doubt partly belong to the era of the Kiptchak empire, but many are of more ancient date.

KIPTCHAK', or KAPTCHAK, a race of Tartars or Mongolians, who gave name to a khanate founded in the 13th c., extending from the Jaxartes in Turkistan to the limits of Russia proper, and comprising all the region n. of the Caucasus traversed by the rivers Dnieper, Don, Volga, and Ural. Parts of this region, known as Kazan, Astrakhan, and Crimea, became independent in the 15th c. and were subsequently annexed to Russia.

KIRÂTÂRJUNÎYA, the name of one of the celebrated poems of Sanskrit literature. Its author is Bhâravi, and its principal subject is the conflict of *Arjuna* with the god Siva in his disguise of a *kirâta*, or mountaineer.

KIRBY, EDMUND, 1840–1863; b. N. Y.; graduated at West Point in 1861, and was at once assigned to the duty of drilling volunteers in Washington. When the army moved he was assigned to Ricketts's battery, of which he assumed command after Ricketts was taken prisoner in the battle of Bull Run. He was engaged successively at Ball's Bluff, in the Virginia peninsular campaign of 1862, fighting bravely at Yorktown,

Fair Oaks, Malvern Hill, etc., and in the Rappahannock campaign at Fredericksburg and Chancellorsville. In all the battles of these campaigns he displayed a coolness, skill, and courage remarkable in one so young. At Chancellorsville he received wounds which caused his death in Washington, May 28, 1863. As a tribute to his gallantry he was appointed on his death-bed a brig.gen. of volunteers.

KIRBY, Rev. WILLIAM, an eminent English naturalist, was b. at Witnesham Hall, Suffolk, Sept. 19, 1759. He was educated at Caius college, Cambridge, and was afterwards appointed to the curacy of Barham, which he held for 14 years, when he was preferred to the rectory. This office he held until his death, which happened on July 4, 1850, when he had nearly reached the great age of 91. His principal works are *Monographia Apum Angliæ* (Ipswich, 1802), and *Introduction to Entomology* (4 vols. 1817–26), published conjointly with Mr. Spence. The first was very favorably received both at home and abroad, and at once secured for Kirby a distinguished place among European savants. The second work is written in the form of letters, and was and still is remarkably popular. Kirby also contributed a variety of very important entomological papers to the Linnæan Transactions. His greatest discovery in this department of science is that of the genus *stylops*—the type of a new order of insects, living for a time parasitically in the bodies of bees. He also wrote one of the Bridgewater treatises, entitled *Habits and Instincts of Animals.* Kirby was one of the first members of the Linnæan society (founded in 1788), honorary president of the entomological society, and fellow of the royal and geological societies.—See *Life,* by rev. John Freeman (1852).

KIRCHENTAG, an association of ministers and laymen of the Lutheran, German Reformed, United Evangelical, and Moravian churches in Germany, for the promotion of the interests of religion, without reference to their denominational differences. It holds an annual meeting, the place of which is changed from year to year. The first meeting took place in 1848, at Wittenberg, in the church to which Luther affixed his theses. Its discussions and resolutions have exercised a considerable influence in Germany.

KIRCHER, ATHANASIUS, 1602–1680; b. Guysen, near Fulda; entered the order of the Jesuits at an early age, educated at the university of Würzburg, where he afterwards taught philosophy and the oriental languages. At the commencement of the thirty years' war he returned to France, and spent two years in the Jesuits' college at Avignon, occupied entirely in the study of antiquities. By advise of the learned Peiresc he applied himself with great zeal to the task of deciphering the Egyptian hieroglyphics. He was preparing to return to Germany as professor of mathematics at Vienna, to which he had been appointed, when he received an order to repair to Rome, which he obeyed. In 1637 he was charged by the pope to accompany cardinal Frederick of Saxony to Malta, and was received with great honor by the knights of St. John. Having visited Sicily and the kingdom of Naples, he took the chair of mathematics in the Roman college, which he filled for eight years. In his researches and experiments he received liberal aid from German, Italian, and Spanish princes and nobles, and also collected a splendid museum of antiquities, which he left to the Roman college. He was a man of extensive and varied but ill-digested erudition, and a copious writer on mathematics, physics, philology, hieroglyphics, history, and antiquity. He had a vast memory and untiring perseverance, but he lacked judgment and critical skill; his theories are often fanciful, and he self-complacently believed that he could solve any question however difficult. Of his numerous works the most important are: *Prodromus Coptus sive Ægyptiacus; Latium,* with maps and figures: *Institutiones Grammaticales et Lexicon Copticum; China Illustrata; Mundus Subterraneus; Œdipus Ægyptiacus.* The most valuable are those relating to the Coptic and Egyptian tongues, and his *Latium,* which, with its maps and plans, is interesting and instructive.

KIRCHHEIM, a t. of Würtemberg, 15 m. s.e. from Stuttgart. Pop. '80, 6,587, nearly all Protestants.

KIRCH'HOFF, GUSTAV ROBERT, b. Königsberg, Germany, 1824; educated at the university of his native place; lectured on physics at Berlin in 1848, and at Breslau in 1850. In 1854 he was appointed professor of natural philosophy at Heidelberg. His researches in several branches of physical science have been of great value, but his principal achievement is the discovery of the spectroscope, which he made in connection with Bunsen, and its application for the spectrum analysis, so important in the study both of chemistry and astronomy. His writings upon these subjects are highly prized.

KIRGHIS, or KIRGHIS-KAISAKI, or COSSACKS OF THE STEPPES, a people spread over the immense territory bounded by the Volga, desert of Obshtchei (in 55° n. lat.), the Irtish, Chinese Turkistan, Ala-Tau mountains, the Sir-Daria, and Aral and Caspian seas. A few tribes of Kalmucks also live within these boundaries. Over this vast tract reigns a dismal monotony; the country has scarcely any important elevation or depression, no river of consequence runs through it, no great forest breaks the uniformity of the scene; it is a vast steppe, containing 850,000 English sq.m., sterile, stony, and streamless, and covered with rank herbage of 5 ft. high. It abounds in lakes and marshes, the water of which is generally brackish and unserviceable, and in the southern portion lies the Kara-Kum, an extensive salt desert.—The Kirghis are a Turkish race,

and speak the dialect of the Uzbeks, from whom they profess to be descended. They have, from time immemorial, been divided into the *Great*, *Middle*, and *Little Hordes*. The first of these wanders in the s.w. portion of the Russian steppe, partly in the Russian possessions n. of the Ala-Tau and Khokan, and partly in the territory of China. They are subject to the rulers within whose bounds they dwell. The Middle Horde possesses the territory (called the *country of the Siberian Kirghises*) between the Ishim, Irtish, lake Balkhash, Khokan, and the territory of the Little Horde; and also a great portion of the Russian province of Semipalatinsk. Russia has gradually absorbed them, the result being finally achieved by the victory over Khiva in 1873, and the formation of the new province of Amu Daria. The Little Horde (now more numerous than the other two together) ranges over the country bounded by the Ural, Tobol, Siberian Kirghis, and Turkistan. Like the Middle Horde, they are claimed as subjects of the czar, though completely independent. This horde is partly agricultural, partly nomad. A small offshoot of the Little Horde has, since 1801, wandered between the Volga and the Ural river, and used to be under rule of the governor of Astrakhan. S. of lake Issikul is a wild mountain tribe called the *Diko-Kamennaja*, the only tribe which calls itself Kirghis. They are called by their neighbors Kara-Kirghis or Black Kirghis, and are of Mandshûr stock. All of them are now subject to Russia. Their collective numbers are estimated at upwards of 1¼ million of souls, more than half of whom belong to the Little Horde.

KIR'IN, or GIRIN, the largest province of Mantchooria, belonging to the Chinese empire. It is bounded n. by the Amoor and Soongaree rivers, e. by the Oosoorce river and the Japan sea, s. by Corea and China proper, and w. by China proper and Mongolia; about 200,000 sq.m.; pop. about 500,000. Its capital, of the same name, is a large town on the Soongaree, and the residence of the viceroy.

KIRK, EDWARD NORRIS, D.D., 1802–74; b. New York, d. Boston. He graduated at Princeton in 1820, and, after studying law for 18 months, entered the theological school at the same place, graduating in 1825. He was employed for some time as an agent of the American board of commissioners for foreign missions, and in 1828 became pastor of a newly organized Presbyterian church in Albany, N. Y. Here he remained until 1837, when ill-health compelled his resignation. He visited Europe, preaching in London and Paris, and in 1839 returned to the United States to accept the position of secretary of the American and foreign evangelical society. In 1842 he became pastor of the newly organized Mt. Vernon Congregational church in Boston, where he preached until 1871, when ill-health compelled him to retire from active service and accept the assistance of a colleague. In 1856 he visited Paris, as an agent of the American and foreign Christian union, to establish Protestant worship there. His style of preaching was fervent and pungent, and he was unusually successful in developing and directing what are known as revivals. As a pastor he was eminently faithful. In the later years of his life he was almost entirely blind, but this did not hinder his attendance upon religious meetings, where he took an active part in discussing themes of popular and practical interest. He received the degree of D.D. from Amherst college, and at the time of his death was president of the American missionary association. He published two volumes of sermons and a volume of *Lectures on the Parables*, and wrote several short works issued by the American tract society in Boston. He also translated Gaussen's *Théopneustie*, a treatise on the inspiration of the Bible. He was never married.

KIRK, JOHN FOSTER, b. New Brunswick, 1824, and educated in Nova Scotia; removed to the United States at the age of 18 years, and five years later became private secretary to William H. Prescott, the historian, a position which he held until the latter's death in 1859. Between 1862 and 1868 Mr. Kirk published his *History of Charles the Bold*. He also edited an edition of Prescott's works, and has written numerous historical papers for periodicals. Since 1871 he has been the editor of *Lippincott's Magazine*.

KIRKAL'DY, Sir WILLIAM, OF GRANGE, son of James Kirkaldy; b. in Scotland early in the 16 c.; died 1573; was one of the earliest Protestants of Scotland; joined the conspiracy against cardinal Beatoun in 1546; was imprisoned, but escaped to France, where he distinguished himself in the service of Henry II. In 1559 he returned to Scotland, where he took part in the movement against Mary queen of Scots; was in the battle of Carberry Hill, where he narrowly escaped being killed by Bothwell, whom he pursued to the coast of Norway; aided in Mary's defeat at Langside, and was made governor of Edinburgh castle in 1568; afterwards espoused the cause of Mary, and defended the castle in her interest, 1570–73, against the attacks of marshal Berwick; but surrendered in the latter year, and with several of his followers was hung in Edinburgh

KIRKBRIDE, THOMAS S., LL.D., b. Penn., 1809. He graduated at the university of Pennsylvania, 1832, and became resident physician to the Friends' asylum for the insane at Frankford. In 1833 he was appointed physician to the insane hospital at Philadelphia. Upon the establishment of the new Pennsylvania hospital for the insane in 1850, he was made its first superintendent. Dr. K. published *Rules and Regulations of the Pennsylvania Hospital for the Insane; Constitution, Organization, and General Management of Hospitals for the Insane; Appeal for the Insane.* In 1859 an insane hos-

pital was built for Dr. Kirkbride on his own plan, with separate departments for the sexes, and he assumed control of the female department. He d. 1883.

KIRKCALDY, a royal and parliamentary burgh, seaport, and market-town in the county of Fife, Scotland, a place of growing commercial importance. Including the suburbs of Linktown and Newtown of Abbotshall on the w., and Pathhead, St. Clairtown, and Gallatown on the n.e., it is fully 3 m. in length; hence the name of the "Lang Toun." In conjunction with Dysart, Kinghorn, and Burntisland, Kirkcaldy sends one member to parliament. Its harbor is commodious, and there is wet-dock accommodation for ships of considerable burden. Its manufactures are spinning flax, tow, and jute, and bleaching and weaving linen yarns, which are extensively carried on, the products being the usual varieties of linen cloth; mechanical (including marine) engineering on a great scale; iron-founding; brewing; and tanning. There are also several potteries. The manufacture of floor-cloth and wax-cloth has been recently developed into a great trade, and Kirkcaldy is the chief seat of this growing and important manufacture. There is a very ample supply of water by gravitation. In 1876, 4,343 vessels of 386,646 tons entered and cleared the port. Pop. of parliamentary burgh in 1881, 13,320. Kirkcaldy is the birthplace of the author of the *Wealth of Nations;* and more recently, Edward Irving and Thomas Carlyle were teachers here.

KIRKCUD'BRIGHTSHIRE, more properly the stewartry of Kirkcudbright, a county in Scotland, comprehending the eastern district of Galloway, is bounded on the n. and n.e. by the counties of Ayr and Dumfries, on the e. and s. by the Solway firth and the Irish sea, and on the w. by the county of Wigton. Its length from e. to w. is from 45 to 50 m., and its breadth is about 40 miles. Its area is 954 sq.m., or 610,734 acres, of which there are 184,761 acres under rotation of crops and grass. The rest is composed of hilly and mossy ground, and lakes, of which there is one in almost every parish. Some of the hills, one-fourth of which are of granite, are of considerable altitude; among which are Meyrick, 2,764 ft.; Cairnsmore, 2,597 ft.; and Criffel, 1867 feet. There are several considerable rivers, the principal of which are the Cree and the Dee; the latter of which is navigable for 2 m. above Kirkcudbright.

There are upwards of 400 landowners, many of whom possess small bounds, and farm their own land. One-half of the land is under entail. The occupants number 1377. The valued rent for 1674 was £9,549. The valuation for 1878–79 (exclusive of royal burghs) was £364,647; that of railways was £28,898. In the year 1878 the total acreage under all kinds of crops, bare and fallow grass, was 174,171; under corn crops, 32,334; under green crops, 17,696. The soil of the county is principally composed of a thin mold, or a brownish loam mixed with sand, lying above rock and gravel. The condition of the rural inhabitants, and the state of agriculture of this county, up to almost the end of last century, were very primitive; the principal food of the people in the early part of the century was kale, and oats ground in querns turned by the hand, and dried in a pot; but arable husbandry has been improved of late, while great attention is being paid to the rearing of cattle. The principal towns are Kirkcudbright, the county-town, with a pop. (1871) of 2,470, New Galloway, Creetown, Gatehouse, Castle Douglas, etc. Before the reformation the stewartry possessed more monasteries than any other county of Scotland. There have been a few eminent men of letters connected with this county, of whom the most celebrated were Dr. Alexander Murray, the linguist, and Dr. Thomas Brown. The pop. in 1881 was 42,088. The constituency numbered, in 1880, '82, 2,248, who return one member to parliament.

KIRKDALE CAVE, near Kirkdale church, in the vale of Pickering, Yorkshire, is famous for the numerous remains of tertiary mammals which have been found in it. It was discovered in 1821, in the cutting back of an oolitic limestone rock in which it is situated. It was examined by Buckland, and fully described by him in his *Reliquiæ Diluvianæ.* Its greatest length is stated at 245 ft., and its height generally to be so inconsiderable that there are only two or three places where a man can stand erect. The fossil bones are contained in a deposit of mud that lies on the floor of the cave: this is covered by stalagmite formed by the water, highly charged with carbonate of lime, dropping from the roof. The remains of the following animals have been discovered: hyena, tiger, bear, wolf, weasel, elephant, rhinoceros, hippopotamus, horse, ox, deer, hare, rabbit, water-rat, raven, pigeon, lark, and duck.

KIRKE, Sir David, 1596–1656; b. in France, where he engaged in business as a wine merchant till the persecution of the Huguenots drove him back to England, where his father had emigrated. In 1627 he was placed at the head of an expedition sent out from England to attack the French settlements in Canada. In the discharge of this duty he blockaded Quebec, and took a French squadron prisoner. He again laid siege to Quebec in 1629, and forced it to surrender. For these services he was knighted and received a grant of lands in Newfoundland of which he was dispossessed in the time of Cromwell.

KIRKES, William Senhouse, 1820–64. He was resident physician to St. Bartholomew's hospital, London. He published in 1848 a *Handbook of Physiology,* and from time to time a series of papers on the *Detachment of Fibrinous Deposits from the Interior of the Heart.* These papers contain much interesting matter in regard to what is known by pathologists as embolism.

KIRKHAM, a market t. of England, in the county of Lancaster, is situated on a small tributary of the estuary of the Ribble, 8½ m. w.n.w. of Preston. Sail-cloth, sacking, cordage, and cotton fabrics are manufactured. Pop. '81, 3,840.

KIRKINTILLOCH, a burgh of barony and market-town in Dumbartonshire, Scotland, is situated on the Forth and Clyde canal, about 6 m. n.n.e. of Glasgow. It had its origin in a fort on Antoninus's Wall, and is said to have been called at first *Caerpentulach* (the fort at the end of the ridge), of which its present name is supposed to be a corruption. It became a burgh of barony in the time of William the lion. Hats and cotton cloths are manufactured here, and there are bleaching and printing works, collieries, iron-stone mines, and quarries. Pop. '81, 8,029.

KIRK-KILISS'IA (the "forty churches"), a t. of European Turkey, 104 m. n.w. of Constantinople. The pop. is variously estimated at from 16,000 to 28,000, and consists chiefly of a mixed race of Bulgarians, Greeks, and Turks.

KIRKLAND, CAROLINE MATILDA, 1801–64; b. N. Y.; wife of prof. William Kirkland of Hamilton college, with whom she emigrated to Michigan in 1839, that state having been admitted to the union only two years before. Here she doubtless obtained the inspiration for her first writings: *A New Home, Who'll Follow?; Forest Life;* and *Western Clearings.* These works were published under the pseudonym of "Mary Clavers." In 1843 prof. Kirkland removed his family to New York, where Mrs. Kirkland established a private school for young ladies, which met with success. In 1849, after her return from Europe, she published *Holidays Abroad, or Europe from the West;* and, at intervals thereafter, *The Evening Book, or Fireside Talk on Morals and Manners; A Book for the Home Circle; The Book of Home Beauty,* to accompany a series of engraved portraits of American women; and *Personal Memoirs of George Washington.* Mrs. Kirkland was enthusiastic and earnest in whatever she undertook, and to the over-exercise of these qualities she owed her death, which resulted from her continuous and severe labors in connection with the great metropolitan fair, held in New York in April, 1864, in behalf of the union defense committee, and the cause of the union during the war of the rebellion.

KIRKLAND, JOHN THORNTON, D.D., LL.D., 1770–1840; son of Samuel Kirkland, missionary to the Indians; b. N. Y.; graduated at Harvard college, 1789; ordained pastor of the Congregational church, Summer street, Boston, in 1794; was elected president of Harvard college in 1810, and retained the office until 1828, when he was stricken with paralysis. The college was very prosperous under his administration. He was distinguished for vigor of intellect, practical sagacity, and great energy. He published several pamphlets and some biographies. His *Life of Fisher Ames* is valuable.

KIRKLAND, SAMUEL, 1744–1808; b. Conn.; graduated at Princeton in 1765; ordained a Congregational minister in 1766. He was for some time a missionary among the Six Nations, and in 1775 was employed by the state of Massachusetts as an agent to secure their favor or neutrality in the revolutionary war, in which attempt he did not fully succeed. He was an army chaplain during the revolution. He founded the academy in which Hamilton college had its origin. In 1789 the government gave him a tract of land 2 m. square in what is now known as the township of Kirkland, Oneida co., N. Y. Died at Clinton, N. Y.

KIRK-ROAD, in the law of Scotland, means a road used by the inhabitants of a district (generally a short cut) for the purpose of going to church. Such a right to a road, if ancient, is recognized as valid in Scotland, and also in England and Ireland.

KIRK-SESSION, in Scotland, etc., the lowest court in Presbyterian churches; being the governing body of a particular congregation, and composed of the "minister" and "elders" of the congregation. An appeal may be taken from the kirk-session to the presbytery, and thence to the higher courts of the church. Subject to this appeal, the kirk-session exercises discipline in regard to all members of the congregation, suspending from or restoring to the *privileges* of the church; and questions of this kind must originate in the kirk-session, and be primarily determined there. The functions of the kirk-session were, in former times, too often inquisitorially exercised; but this is now less frequently attempted, and the danger of it is continually diminishing through the growth of an enlightened public opinion. In former times, also, the kirk-session in Scotland often imposed fines, chiefly for offenses against the seventh commandment; but this practice had no recognition in civil nor even in ecclesiastical law, and is now wholly relinquished. The kirk-session of the established church in each parish is fully recognized in Scottish law as having certain rights and duties with respect to the poor, but recent legislation has very much deprived it of its former importance in this relation.

KIRKWALL, a royal and municipal burgh, sea-port, and market t. of Scotland, capital of the co. of Orkney, is situated on the n.e. coast of Mainland, about 26 m. n.n.e. of John o' Groat's House. Its chief building is the cathedral of St. Magnus, a fine cruciform structure, in mixed Norman and Gothic, dating from about the year 1138. In the choir of this cathedral service is still held. Around it are the ruins of the king's castle, the earl's palace, and the bishop's palace. The town has been greatly improved within recent years. Numerous shops have been established, so that the commercial transactions are now not confined to the annual fair in Aug., as they were formerly.

The export trade, chiefly in agricultural produce, is increasing rapidly. Kirkwall unites with the Wick burghs in sending a member to parliament. In 1878–79 its parliamentary and municipal constituency numbered 384, and the annual value of real property was £9,470. Pop. '81 of parliamentary burgh, 3,923.

KIRKWOOD, Daniel, ll.d., b. Md., 1814. He was teacher of mathematics in the academy of York co., Penn., from 1838 to 1843, when he was appointed principal of the Lancaster high school, where he remained until 1848, resigning then to accept a position in the Pottsville academy. In 1849 he brought to the notice of the American association for the advancement of science at Cambridge, and the American philosophical society at Philadelphia, his then recently discovered analogy between the periods of rotation of the primary planets. In 1851 he was appointed professor of mathematics in Delaware college, and in 1854 he was chosen president of the same institution. He served in this capacity until 1856, when he resigned to take the chair of mathematics in the university of Indiana at Bloomington. His researches in regard to the nebular hypothesis have attracted wide attention among scientific men. Prof. R. A. Procter says: "I believe they will inaugurate new and important processes of thought, by means of which the noble and hitherto intractable problems connected with the formation of the solar system may be found capable of solution." Prof. Kirkwood has published *Comets and Meteors: their Phenomena in all Ages, and their Mutual Relations and the Theory of their Origin.* He received in 1852 the degree of ll.d. from the university of Pennsylvania.

KIRKWOOD, Samuel J., b. Md., 1813; educated at Washington, admitted to the bar in Ohio in 1843. He served four years as prosecuting attorney of Richland co., and was a member of the state constitutional convention of 1850. In 1855 he removed to Iowa, where he was elected to the state senate in 1856. From 1860 to 1863 he was governor of the state, distinguishing himself by his efforts to support the national government in the time of the southern rebellion, and to provide for the comfort of the soldiers of Iowa in the union armies. In 1867 he was elected to the U. S. Senate, and in 1875 was again elected governor. He was sec. of the Interior under Pres. Garfield.

KIRMESS. See Kermesse.

KIRSANOFF', a t. of great Russia, in the government of Tamboy, in lat. 52° 39′ n., long. 44° 44′ east. Horses and fine fleeced sheep are reared here, common cloth is manufactured, and there are two annual fairs. Pop. '80, 7,203.

KIRSCHWASSER (Ger. cherry-water) is a liquor made from cherries, and highly esteemed in Germany. The cherries, gathered when quite ripe, and freed from their stalks, are pounded in a wooden vessel, but so that the stones are not broken. They are then left to ferment, and when fermentation has begun, the mass is stirred two or three times a day. The stones are afterwards broken, and the kernels broken and thrown in. By distillation, kirschwasser is obtained. Kirschwasser is sometimes called *cherry brandy*, but the common cherry brandy is made by mixing brandy with the juice of cherries.

KIRTLAND, Jared Potter, ll.d., 1793–1877; b. Conn. Educated by his uncle, a distinguished physician, he early showed a disposition for analytical research. When a boy of 16 his study of botany led him to experiments in the cross-fertilization of flowers for the artificial production of new varieties of fruit, and his study of insect life was so minute that he was one of the first to discover the hermaphrodite character of the female silkworm, which led to the study of the metamorphosis of insects. In 1810 his father moved to Ohio and these studies were interrupted; but he taught school, and became an accomplished botanist. In 1811, his uncle having bequeathed him his library in Wallingford, and money to complete an education, young Kirtland went to the medical school of Edinburgh, Scotland, in 1815. In 1818 he removed to Ohio to practice his profession, taking a high position in it, but always better known by his scientific attainments. In 1828, in the Ohio legislature, he led the reform movement that changed the discipline of penitentiaries. From 1837 to 1842 he was professor of medicine in the Ohio medical college of Cincinnati, and afterwards for many years filled similar positions in the Willoughby and Western Reserve medical colleges of northern Ohio. In the first geological survey of Ohio in 1848 he was engaged on the natural history department. The range of Dr. Kirtland's investigations was great, though he has not left by authorship such monuments of his scientific industry as might have been expected. In 1834 he discovered and announced the existence of distinct sexes among the *naiades*. His contributions to our knowledge of the honey-bee have been great and form the basis of much that has been written by others. In the cross-fertilization of fruits his boyish experiments, continued through life, were in part so practically successful that several of the most valuable varieties of cherries now in cultivation in this country and Europe were originated under his hand. He died in Cleveland, Ohio.

KIRWAN, Richard, an eminent chemist of Ireland; b. probably within the first quarter of the 18th century. At an early age he was sent to a Jesuit college in France to study law or medicine. While there he came into possession of the family estate by the death of his elder brother. He then devoted himself to his favorite studies of chemistry and geology. In 1779 he removed to England, settled in London, and was admitted to the royal society, before which he read many important papers, for which he received in 1781 the Copley gold medal. In 1789 he returned to Ireland, was made

president of the royal Irish academy and of the Dublin society, and published several essays on his own special branches, and on logic and metaphysics. He was regarded as the Nestor of English chemistry. He died at an advanced age in 1812. In one of his earliest works, *Essay on Phlogiston and the Composition of Acids*, he attempted to reconcile the old chemistry with modern discoveries. It was answered by the French chemists, and Kirwan abandoned his views of phlogiston and adopted those of his opponents. His other works were *Elements of Mineralogy; Geological Essays; Essay on the Analysis of Mineral Waters.*

KIRWAN, Walter Blake, 1754–1805; b. Galway, Ireland; was educated at the college of the English Jesuits at St. Omer; ordained priest; appointed professor of natural and moral philosophy at Louvain; became a Protestant in 1787, and was minister of St. Peter's church, Dublin; prebendary of Howth; dean of Killala in 1800. He was a man of uncommon eloquence; and so great were the throngs where he preached that the police had to defend the entrance of the church with guards and palisades. He was often invited to preach charity sermons, and the contributions were seldom less than £1000. These addresses have been published, with a sketch of his life.

KISCHINEFF', or Kischenaw. See Kishenau, *ante.*

KISFALUDY, Karoly (Charles), younger brother of Alexander, was b. Mar. 19, 1790. He is of greater importance in connection with the development of the Hungarian theater than his brother, being regarded as the founder of the national drama. In 1817 he took up his residence in Pesth, and published in rapid succession a series of poems, tales, dramas, and comedies, which secured for him the highest popularity as an author. Of these, his comedies are by far the most valuable. The best of them were translated into German by Gaal (*Theater der Magyaren*, Bonn, 1820). Kisfaludy died at Pesth, Nov. 21, 1830.—The *Kisfaludy society*, so named in honor of the brothers, was established in 1817, and has rendered important services to Hungarian literature.

KISFALUDY, Sandor (Alexander), a Hungarian poet, who exercised a great influence on the development of the language and literature of his native country, was b. at Sümegh (co. of Szalad), Sept. 22, 1772. He studied at Raab and Presburg, and after serving for several years in the Austrian army, retired to his paternal estate, to devote himself to literature and farming. The first part of his lyrical masterpiece, *Himfy' Szerelmei* (Himfy's Love), which appeared anonymously in 1800, was received with unbounded applause. Kisfaludy was spoken of as the "great unknown." On the publication of the second part in 1807, the author threw aside his mask. In the same year he published his *Regék á Magyar Elöidlöböl* (Legends of the Olden Time in Hungary), which are marked by depth of feeling, and by elegance and simplicity of style. Kisfaludy now attempted tragedy, and took Schiller as his model. Some of his historical dramas are worthy of mention, for example his *János Hunyadi*, and *Ladislaus the Cumanian.* Some of his pieces, illustrating the family life of his countrymen, are among the best on the Hungarian stage. A complete edition of his writings appeared at Pesth, in 8 vols., 1833–38. He died at Sümegh, Oct. 30, 1844.

KISHENAU', or Kichenev, a t. of Russia, capital of the government of Bessarabia, 95 m. n.w. of Odessa. Until 1812, when it came into the possession of Russia, it was a place of no consequence; since then, however, it has rapidly increased in size and prosperity. Pop. 1838, 13,000; '58, 85,547; '80, 112,137, composed of Russians, Jews, Cossacks, Poles, Germans, Armenians, Bulgarians, Greeks, gypsies, and many other nationalities.

KISHM (the ancient *Oaracta*), an island of Persia, belonging to the imaum of Muscat, is situated at the mouth of the Persian gulf, and is about 70 m. in length by 12 in average breadth. It is separated from the mainland by a deep and dangerous strait, in which are several small wooded islets. Kishm yields in abundance grain, timber, dates, and vegetables, and supports numerous cattle. At its eastern extremity is a town of the same name, the capital of the island. Entire pop. estimated at 5,000.

KISH'ON, a river or winter stream of central Palestine, which rises in the valley of Jezreel, near the foot of Mt. Tabor, and, after running westward with many windings through the plain of Esdraelon, falls into the Mediterranean at the s.e. corner of the bay of Acre. It is noted in Scripture as the scene of two remarkable events—the overthrow of the host of Sisera in its waters, and the destruction of the prophets of Baal. Its upper portion is dry most of the year, the perennial stream forming but a small part of the river, and confined to a few miles near the sea. In the rainy season the water which falls on the eastern side of the mountain empties into the Kishon in torrents, when it overflows its banks, acquires a wonderful rapidity, and sweeps all before it. Such was, no doubt, its condition when Sisera's host was overwhelmed in it. The modern representative of this river is *Nahr Mukütta*, a drain which carries to the Mediterranean the waters of the plain of Esdraelon and of the mountains inclosing it.

KISS, August, a distinguished German sculptor, was b. at Plesz, in upper Silesia, Oct. 11, 1802. He studied under Rauch at Berlin, and gradually acquired a high reputation, which was greatly increased on the completion, in 1839, of the model of his celebrated colossal group of the "Amazon attacked by a Panther," for the execution of which in bronze, now the ornament of the museum stairs in Berlin, the sum of 40,000

thalers was subscribed with the greatest enthusiasm on the part of the public. Among his other works are "St. Michael overthrowing the Dragon," "A Tiger destroying a Serpent," and a statue of Frederick the great. He died in 1865.

KISSINGEN, a t. of Bavaria, in lower Franconia, celebrated for its mineral waters, is situated in the valley of the Saale, 30 m. n.n.e. of Würzburg. Of its three mineral springs, the *Rakoczy* and the *Pandur* furnish saline and chalybeate waters, the *Maxbrunnen* are acidulous and alkaline. A spring called the *Soolen-Sprudal* is remarkable for the periodical ebb and flow of its waters, caused apparently by the accumulation and discharge of carbonic acid gas. The waters are both drunk and used as baths by the patients, and are considered specially efficacious in cases of chronic disease, gout, etc. Mud baths, of the sediment of some of the springs, are also in use. Since 1848, gaming tables have been forbidden. Pop. '75, 3,471.

KIS'SINGEN (*ante*). Kissingen is a walled town. It contains five mineral springs. *Pandur*, discovered in the 16th c., has a temperature of 50°, used for bathing. It is saline and chalybeate. The *Rakoczy* spring was discovered in 1737. It has a temperature of 52°, and is used for drinking. Liebig's analysis of its waters is as follows: 16 oz. contain 0.242 gr. of carbonate of iron; 0.131 gr. of carbonate of magnesia; 8.148 grs. of carbonate of lime; 0.043 gr. of phosphate of lime; 0.099 gr. of silica; 2.990 grs. of sulphate of lime, or gypsum; 44.713 grs. of chloride of sodium, or common salt; 4.509 grs. of sulphate of magnesia, or Epsom salts; 2.203 grs. of chloride of potassium; 2.333 grs. of chloride of magnesium; 0.064 gr. of bromide of sodium; 0.071 gr. of nitrate of soda; 0.153 gr. of chloride of lithium; 0.007 gr. of carbonate of ammonia; and 41.77 cubic in. of carbonic acid gas. Total solid mineral ingredients, 65.706 grs. The objectionable ingredient in this water is sulphate of lime, which constitutes nearly one-fifteenth of all the mineral matter held in solution. Sulphate of lime possesses poisonous properties when taken internally in any considerable quantity, and is injurious and irritating as an outward application, as those who work in plaster of Paris can testify. The *Maxbrunnen* has a temperature of 50°; *Theresa*, 50°. These are alkaline, carbonated waters. The *Soolen-Sprudal* has a temperature of 68°, and is used for bathing. A little to the n. of the town there is an artesian well 2,000 ft. deep, from which, by the action of carbonic acid gas, a column of water 5 in. in diameter can be thrown 70 ft. high. This water is forced down into a bed of rock salt, from which it issues into a reservoir which flows into the salt-pans in the boiling house, where a beautiful fine white salt is manufactured. Kissingen has from 10,000 to 12,000 visitors every year. The Prussians, in 1866, gained a victory over the Bavarians at this place, and it was here also that an attempt upon the life of Bismarck was made by a cooper named Kullmann, July 13, 1874.

KIST'NAH, or KRISH'NA, a river of the peninsula of Hindustan, rises within 40 m. of the Arabian sea, at a height of 4,500 ft., in lat. 18° 1′ n., and flowing eastward, falls into the bay of Bengal, after a course of 800 miles. It forms a considerable delta at its mouth.

KIT, in military language, the equipment in necessaries, such as shirts, boots, brushes, etc., of a soldier, but not applicable to his uniform, arms, or accouterments. Formerly, a high bounty was given, and then severely encroached upon, by making the recruit pay for his kit. The fairer principle is now adopted of issuing a free kit to each recruit, with a smaller bounty. The soldier has still to replace necessaries, worn out or lost, at his own expense, but he obtains the articles at wholesale, and very low prices. As these necessaries are so cheaply procured, it is held a very heavy military offense to make away with them.

KIT, a small, narrow-bodied violin, about 16 in. long, capable of being carried in the coat-pocket, and used chiefly by teachers of dancing.

KIT-CAT CLUB, an association instituted in London in 1703, consisting of noblemen and gentlemen favorable to the succession of the house of Hanover, and whose ostensible object was the encouragement of literature and the fine arts. Jacob Tonson, an eminent publisher, was founder and secretary. The club derived its name from having met for some time in the house of Christopher Cat, a pastry cook. The club was dissolved about 1720, previous to which each of the members presented his portrait (half-length figure) to Tonson, painted a uniform size by sir Godfrey Kneller. These interesting portraits, 42 in number, are now in possession of Mr. W. R. Baker, Hertfordshire.

KITCHEL, HARVEY DENISON, D.D., b. N. Y., 1812; graduated at Middlebury college in 1835; studied theology in New Haven; was settled as a Congregational minister at Thomaston, Conn., 1839–48; at Detroit, Mich., 1848–64; and at Chicago, 1864–66; was elected president of Middlebury college in the latter year, and served until 1875, when he resigned.

KITCHEN-GARDEN, a garden devoted to the cultivation of culinary vegetables, or that part of a large garden which is specially appropriated to this use. As the crops of the kitchen-garden are not generally very pleasing to the eye, care is taken, if possible, that it may not be within view of the principal windows of a mansion-house, or otherwise obtruded on notice. But regard must also be had, in the selection of a situation for the kitchen-garden, to exposure, shelter, etc., in which it needs and deserves every

advantage that can be obtained. Nor, in order to hide it from view, ought it to be so surrounded with trees as to deprive it either of sunshine or of free access of air.

The general remarks made in the article GARDENING as to soil and the preparation of it, manuring, water, gardening operations, etc., are all applicable to the kitchen-garden; a part of which, or a place close beside it, is always allotted to compost heaps and the processes connected with them. The successful cultivation of a kitchen-garden requires constant care and labor. Many crops require frequent digging and hoeing during the period of their growth, and the ground must be kept free of weeds as perfectly as in the flower-garden itself. A rotation of crops is of as much importance in the kitchen-garden as in the farm; cabbages and their congeners, potatoes, leguminous crops, etc., must not from year to year be grown on the same ground. But there are some perennial plants which occupy the same ground for years, as artichoke, asparagus, and sea-kale, and attention must be paid to this in laying out the garden.

The crops cultivated depend, of course, on climate. It will be enough to enumerate here the most important kitchen-garden crops of Britain, referring for further information to each as a separate head. The capitals indicate those most generally cultivated. The varieties of *brassica oleracea;* KALE, CABBAGE, COLEWORTS, SAVOYS, BRUSSELS SPROUTS, CAULIFLOWER, BROCCOLI, Kohl-rabi, etc. POTATO, JERUSALEM ARTICHOKE, TURNIP, CARROT, PARSNIP, RADISH, RED BEET, Skirret, SALSIFY, Scorzonera, BEAN, PEA, KIDNEY-BEAN, SCARLET-RUNNER, ONION, LEEK, Garlic, SHALLOT, Rocambole, Welsh Onion, SPINACH, White Beet, ASPARAGUS, SEA-KALE, ARTICHOKE, LETTUCE, CRESS, MUSTARD, Sorrel, Corn-salad, Endive, CELERY, PARSLEY, HORSE-RADISH, RHUBARB.

Sweet herbs are to be found in almost all gardens, as thyme, lavender, sage, spearmint, balm, marjoram, savory, etc. The cultivation of the pumpkin, vegetable marrow, and all kinds of gourds, and of the melon and cucumber, is regarded as belonging to the kitchen-garden; which also contains the houses or pits employed for *forcing* both vegetables and fruits. And the hot-houses in which fruits are grown for culinary use, are very generally placed in the kitchen-garden. The cultivation of mushrooms, whether in beds or otherwise, belongs to the kitchen-garden.

KITCHEN-MIDDENS (Danish, kjökken-mödding), or moldering shell-mounds, the vestiges of feasts of prehistoric men of the neolithic age. They are found in northern Europe, more particularly in the Danish islands of the Baltic. They are supposed to be the accumulated refuse of annual or periodical tribal feasts. It is thought that the early races of men in all countries were in the habit, at stated times, of gathering in large numbers on the sea-shore and feasting on mollusks, fishes, and other animals leaving the shells, bones, and some of the utensils, deposited in some order to mark the place of assemblage. Many of the implements found in the Danish mounds are carefully shaped and polished, and there are no remains of extinct animals, only those of living species; moreover, the remains of one domestic animal are found in the mounds, those of the dog, but no agricultural implements or anything to indicate the culture of the soil. Some of these mounds are 1000 ft. long, 200 ft. wide, and 10 ft. high. Other remains of the same era occur in the lower part of Danish peat formation, such as log canoes, which are supposed to have been used by the men who made the shell-mounds. It is said that the shells found in these remains are rather larger than those of the same species found at the present time on the Danish shores, and that the mounds somewhat resemble those made by the American Indians near the sea-shore.

KITE, *Milvus*, a genus of *falconidæ*, or a sub-family including elanets, etc., of which only one species is a common native of Britain, and another is amongst its rarest visitants. The kites have much weaker bill and talons than the falcons and hawks, but the wings are much longer, and the tail is rather long and forked. Their legs are short. They are remarkable for their gracefulness of flight, and power of sailing and wheeling about, or gliding in the air. A Scotch and local English name of the COMMON KITE (*M. vulgaris*), GLEAD or GLED, is believed to be from the same root with *glide*. The common kite is found in almost all parts of Europe, the n. and center of Asia, and the n. of Africa. It is fully 2 ft. in length, from the tip of the bill to the tip of the tail, the plumage mostly brown, of various shades, in some parts mixed with gray. It feeds on reptiles, mice, moles, and other small quadrupeds, and the young of gallinaceous birds, searching for its prey on the ground, and often from no small elevation in the air. It sometimes catches fish. In former times, when it was much more plentiful in Britain than now, it was the scourge of poultry-yards, pouncing on young chickens. It was also the scavenger of London and other English towns, devouring the offal, as it still does in some of the towns of eastern Europe, and performing its office fearlessly even in the midst of the people. This continued to be the case in London to the time of Henry VIII. The kite's nest is usually in the fork of a tree in a thick wood. It is easily tamed.—A very rare British bird is the swallow-tailed kite (*nauclerus furcatus*), a smaller bird than the common kite, abundant in many parts of North America.—The GOVINDA KITE (*M. govinda*) is common in India.—Other species are found in different parts of the world.

KITE, a frame-work of wood or other material, shaped according to the fancy of the maker, a favorite form being that of an isosceles triangle, the base of which becomes the top, and is surmounted by a piece of cane or bamboo, bent in the shape of a semi-

circle. Over this frame-work is stretched paper, silk, or muslin; a tail of string, to which twisted strips of paper are fastened, acts as a steering apparatus; and a cord attached to the body of the kite, near the top, completes the mechanism and controls its movements. Kites are also round, square, oval, diamond-shaped, oblong, etc. The origin of this toy is not traced, but it is known to have existed from remote antiquity. Etymology may possibly give a clew to the origin of its name, but it fails to signify the period of its invention. It is derived from the Welsh *cûd* and the Anglo-Saxon *cyta*, while the Gaelic *kyta*, meaning belly, may not improbably have been the root of the English word kite, from the signification of filling with wind which it indicates, as "the bellying sail." But while the kite is thus accounted for in the northern tongues, the article is found in use in many southern and even tropical countries. In China, notably, it has been a favorite toy from time immemorial; the same fact exists with regard to Japan; and in these two countries the form of the article is more diversified than elsewhere; owls, bats, dragons, and other creatures are usually copied, the material employed being silk or paper covered with painted designs in ornamentation. But besides its use as a toy, the kite has frequently been employed practically for important purposes. It has been used in engineering to carry lines to inaccessible points; and, in cases of shipwreck, has been made a medium of communication with the shore, and even to establish means of transportation, thus becoming an agency in saving life. The most important scientific use of a kite was probably that of Dr. Benjamin Franklin, who gained through its instrumentality a solution of the problem of the identity of electricity and lightning. With a design to establish the theory to this effect which he had formulated, Dr. Franklin constructed a kite. The frame-work consisted of a cross made of two light strips of cedar; over this was stretched a silk handkerchief, tied to the four extremities; a sharp-pointed wire extended a foot from the top of the upright stick of the cross, a silk ribbon was tied to the end of the string which held the kite, the end next the hand, and a key suspended at the junction of the twine and silk.

The kite was raised by Franklin, assisted by his son, during a thunder-storm in June, 1752, and almost immediately he had the satisfaction of experiencing a spark on applying his knuckles to the key; and when the string had become wet by the passing shower, the electricity became abundant. A Leyden jar was charged at the key, and by the electric fire thus obtained spirits were inflamed, and all the customary experiments performed. This important testimony to the truth of Franklin's deductions aroused the scientific minds of Europe to consideration of the question. He was highly honored by scientific bodies, and the royal society awarded him the Copley medal in 1753. The kite has added to the English language a species of phraseology peculiarly indicative of its own characteristics. Such terms as "kiting," "kite-flying," and "higher than a kite," though not elegant, are found useful on the stock exchange and elsewhere, to describe certain situations and conditions familiar to all business men.

KITSAP, a small co. in the w. part of Washington territory, being a peninsula bounded e. by Admiralty inlet, s. and s.e. by Puget sound, and n.w. by Hood's canal; pop. '84, 2,065. These waters are navigable for large vessels, and afford excellent facilities for trade and commerce. The surface is mostly in forest, and lumber is the chief article of export. Capital, Port Madison. Valuation of real and personal property, $1,184,764.

KITTANNING, the capital of Armstrong co., Penn., on the Alleghany river, 44 m. n.e. of Pittsburg. The Alleghany Valley railroad passes through it. It has 8 churches, 2 national banks, 4 weekly newspapers, a rolling mill, a woolen mill, several oil refineries, and other manufactories. Pop. '80, 1,681.

KITTATIN'NY, or Blue Mountain, a chain about 800 m. in length, and averaging in height from 1000 to 2,000 ft., whose northern point is in Ulster co., N. Y. Trending to the s.w., it is pierced by the Delaware at the water-gap, by the Susquehanna near Harrisburg, and by the Potomac in the neighborhood of Berkeley Springs, W. Va., and thence extends through North Carolina and Tennessee to Alabama, in which state its elevation lessens and it is finally lost.

KITTERY, a village of York co., Me., on the Piscataqua river, opposite Portsmouth, N. H., and on the Portsmouth, Saco, and Portland railroad, about 4 m. from the ocean. It is in a township of the same name, which forms the s.w. extremity of Maine. Its chief industries are ship-building, the fisheries, and the coasting-trade. The United States has a navy-yard here. The township has 7 churches and a pop. '80, of 3,280.

KITTITAS: co., Wash. T. See page 891.

KIT'TIWAKE, *Larus tridactylus*, or *L. rissa*, a species of gull (q.v.), interesting on account of its abundance in very northern regions, and its importance to their inhabitants. In addition to what is stated in the article Gull, it may be mentioned that the young of the kittiwake has dark markings in its plumage which disappear in the adult, is known on some parts of the British coasts as the Tarrock, and was for some time regarded by naturalists as a distinct species; also that the flesh of the kittiwake is much more pleasant than that of most gulls; and its eggs very good; that it lays usually three eggs, which are fully 2 in. in length. It is found plentifully in all the northern parts of the world, wherever the coast is high and rocky, migrating southwards in winter, and extending its range as far south as the Mediterranean and Madeira. It is found on the Caspian sea.

KITTO, Dr. JOHN, a most industrious and respectable writer on biblical subjects, was b. at Plymouth, Dec. 4, 1804. In his 12th year he lost his power of hearing in consequence of a fall from a height of 35 feet. His father's circumstances were at this time so wretched that young Kitto was soon after sent to the workhouse. Here he learned the trade of shoemaking, and was also enabled to indulge that taste for reading which had marked him from his earliest years. In 1824 he went to Exeter to learn dentistry with a Mr. Grove, who had known him in Plymouth, and who took a warm interest in the unfortunate youth. Mr. Grove encouraged Kitto in his literary aspirations, and in 1825 he published *Essays and Letters by John Kitto.* In the same year, he was sent by the kindness of various friends, to the missionary college at Islington, to be trained for some useful employment abroad. In May, 1829, he accompanied Mr. Grove and family on a tour to the east, visiting in the course of his travels St. Petersburg, Astrakhan, the Kalmuck Tartars, the Caucasus, Armenia, Persia, and Bagdad. He returned to England in 1833. The rest of his life was spent in the service of the booksellers, chiefly in that of Mr. Charles Knight, by whom he was liberally treated. He died at Cannstadt, in Würtemberg, whither he had gone for the benefit of his health, Nov. 25, 1854. His principal works are: *The Pictorial Bible* (1838; new edition by W. & R. Chambers, 1855); *Pictorial History of Palestine* (1839–40); *History of Palestine* (1843); *The Lost Senses—Deafness and Blindness* (1845); *Journal of Sacred Literature* (1848–53); and *Daily Bible Illustrations* (1849–53). He also edited the *Cyclopædia of Biblical Literature* (published by A. & C. Black). Kitto's biography has been written by Dr. J. E. Ryland (1856); a later and better biography is that by prof. Eadie of Glasgow. In 1844 the university of Giessen conferred on him the title of D.D.

KITTREDGE, THOMAS, 1746–1818; b. in Andover, Mass., in 1746; studied at Byfield academy under Samuel Moody, and at Newburyport with Dr. Sawyer; was surgeon in the battle of Bunker Hill, and received the degree of M.D. from Harvard college in 1811. He entered into practice in Andover in 1768, and died there after a residence of 50 years.

KITTSTON: co., Minn. See PEMBINA.

KIUKIANG. See KEW-KIANG.

KIUN, KEN, or CHIUN, a goddess in the Egyptian mythology, answering to the Roman Venus. She is represented standing on a lion's back, and holding in one hand a flower, and in the other two serpents. Reference to this deity is made in Amos v. 26, —"But ye have borne the tabernacle of your Moloch and Chiun your images, the star of your god, which ye made to yourselves."

KIUNG-CHAU', a chief city of the island of Hainan (q.v.).

KIU'SHIU', or KIUSIU, or XIMO, the third largest island of the Japan archipelago. The name comes from *kiu*, nine, and *shiu*, provinces. In the Jesuits' letters and in old books it is called Ximo, a corruption of *shima* "island." The nine provinces of Kiushiu are Satsuma, Ōzumi, Hiuga, Higo, Hizen, Bungo, Buzen, Chikugo, and Chikuzen. Together they form the Saikaido, or western sea region (see JAPAN). Since 1874 Kiushiu has been governmentally divided into ken, or prefectures, having their seats and receiving their names, with one exception, from the chief large cities of the island, viz.: Kagoshima, Nagasaki, Kumamoto, Fukuoka, and Oita. The area of Kiushiu by official computation taken in 1877 is 13,871 sq.m.; and that of the outlying islands near the coast, Tsu, Goto, Yaku, Tané etc., is 1513 sq. miles. Pop. 5,000,000. See titles of cities and provinces.

KIWI-KIWI. See APTERYX, *ante*

KIZIL ARVAT. See page 891.

KIZIL-IRMAK. See HALYS.

KI'ZIL-KUM (Red Sand), a sandy desert in Russian Turkistan, lying between the Amu-Daria and Sir-Daria, and stretching from the sea of Aral to Khokan, in lat. 41° to 46° 30′ n. and long. 60° to 69° east. A continuation of this desert northwards across the Sir-Daria is called KARA-KUM (Black Sand), and forms portion of the Kirghis Steppe.

KIZLIAR', a t. in the s. of Russian Caucasia, in the district of Terek, is situated about 40 m. from the mouth of the river Terek, in lat. 43° 53′ n. long. 46° 43′ east. It contains a fortress, many vineyards, tanneries, and silk-worm nurseries, and carries on an extensive trade in wine, brandy, and fish. A model vineyard and a school for instruction in wine-making have been established here. The climate is unhealthy. Pop. '80, 9,257.

KLADNO, a t. of Bohemia, 15 m. w.n.w. of Prague. It has iron-works and mines of iron and coal. Pop. 10,707.

KLA'GENFURTH, a t. of Austria, capital of the duchy of Carinthia, is situated on the river Glau, 2 m. e. of the *Wörthsee*, with which it is connected by means of a canal, and about 80 m. n.n.e. of Trieste. It is the seat of the prince-bishop of Gurk, and has a library of 50,000 vols. Klagenfurth has a white-lead factory—the largest in Austria—and manufactures woolen, silk, and cotton fabrics. An active transit trade is here carried on. Pop. '80, 18,747. Here the Hungarian gen. Görgei was confined for some years after his surrender to the Russians at Világos in 1849.

KLAM'ATH, a river in n.w. California, rising in Jackson co. in the southern extremity of Oregon, flows through the upper and lower Klamath lakes, and crosses the frontier line into California. It runs south-westward, through Siskiyou, Del Norte, and Klamath

counties, to the mouth of the Trinity river in the n.c. extremity of Humboldt county. After watering a greater part of Klamath co. it flows n.w. from the mouth of Trinity river, and empties into the Pacific ocean between the counties of Klamath and Del Norte in lat. 41° 30′ north. It is 275 m. in length. At low water a bar in the harbor impedes the progress of any but the lightest boats; at high water there is sufficient depth for ships of the line. It is navigable for 40 m. by steamers of light draught. It is a rapid river, flowing through deep and narrow cañons, where, among the mountains, gold has been found in considerable quantities. The adjacent country is well covered with forests of redwood, fir, and cedar. A few miles from its mouth is the town of Klamath.

KLAM'ATH, a co. in n.w. California, which has the Salmon mountains for its eastern boundary, Scotts mountains on the s.e., the Pacific ocean on the w., and the Klamath river on the extreme n.w. It is drained by the Klamath river, with its branches flowing through it from the n. where it rises in Oregon, and from the s. through the valleys, emptying into the ocean; 2,000 sq.m.; pop. '70, 1686—542 Chinese. The mountains are covered in some sections with extensive forests of timber, and groves of cedar, redwood, and fir. The hills afford good pasturage, and in the valleys the soil is fertile and adapted to wheat; other products are oats, potatoes, and hay. A part of the Klamath Indian reserve, that extends into Del Norte county, occupies the extreme northern portion. There are two quartz-mills and two saw-mills; the former are employed in the gold mines, which are worked extensively on the banks of the Klamath, Trinity, and Salmon rivers, at Gold Bluff, and near the Pacific shore. Seat of justice, Orleans Bar. In '74, K. co. was absorbed by Humboldt and Siskiyou cos.

KLAMATH: a co. in Oregon; organized 1882.

KLAM'ATHS, a group of Indian tribes, scattered along the course of the Klamath river, which rises in southern Oregon, and flows s.w. and n.w. until it empties into the Pacific ocean in lat. 41° 30′ north. These tribes include the Shastas, Modocs, Cahrocs, Eurocs, Pitt river Indians, Hoopahs, Wallies—all of these being collectively and contemptuously called "Digger Indians." Of the same family, but characterized by much finer qualities than the other tribes, are the Klamaths proper, known also as Hamati or Clamets, but designated among themselves by the name Luterami; they live near the upper and lower Klamath lakes. These Indians are well made, with good features, the women sometimes quite handsome. They make baskets, hammocks, mats, hats, and other useful articles. Since 1864 the Klamaths have been collected on a reservation by treaty with the United States, but have dwindled in numbers until only a few hundred of them remain. Of the Klamath groups the Modocs became familiar to us in 1872–73 by the war occasioned by a portion of them, under the chief capt. Jack, leaving the reservation—a breach of the treaty with the U. S. government. Latterly the Klamaths have devoted themselves to cutting lumber, creating quite an industry.

KLAPKA, Gyorgy (George), one of the most heroic and skillful generals of the Hungarian war, is the son of the burgomaster of Temesvar, and was b. April 7, 1820. In 1838 he entered the Austrian army, and had attained the rank of lieut.col. when the revolution of 1848 burst out. Klapka instantly placed himself at the service of the Hungarian government, and took a prominent part throughout the struggle. The plan of the Hungarian campaign in the opening of 1849, which was carried out with such great success, was Klapka's work. In several of the battles, the fortune of the day was decided by the troops under his command. But the crowning glory of his patriotic career was his defense of Comorn (q.v.), at the close of the revolution. His famous sally on Aug. 5, was perhaps the most splendid deed of arms in the whole war. The Austrian army besieging the fortress was utterly routed, losing 30 pieces of artillery, 3,000 muskets, vast quantities of provisions, and about 2,000 head of cattle. Klapka was prepared to carry the war into Austria or Styria, but the news of the surrender of Görgei and the flight of Kossuth paralyzed his action. He held out, however, until Sept. 27, when he capitulated to gen. Haynau, on condition that the garrison should retain their lives and liberties. Klapka then proceeded to England, but afterwards to Genoa. In 1859 he was requested by the Sardinian government to form a Hungarian legion, to be used in the war against Austria, but the peace of Villafranca destroyed his hopes of active service. Klapka has written, among other works, *The National War in Hungary and Transylvania* (1851), one of the best works on the subject; and *The War in the East,* etc. (1855). Klapka's judicious proclamation in 1862, when Garibaldi made a rash and unfortunate attempt on Rome, kept Hungarian fighters at home. In 1866, after the defeat of Austria at Königgrätz, he endeavored to effect a revolution in Hungary; but failed, and fled to Oderberg. In 1873 he undertook the reorganization of the Turkish army.

KLAPROTH, Heinrich Julius von, was the son of Martin Heinrich Klaproth, an eminent chemist, and was b. at Berlin, Oct. 11, 1783. He betook himself to the study of the Chinese language when only a boy of fourteen. In 1801 he entered the university of Halle. Here he published his *Asiatischer Magazin,* which gave him a high reputation. Having gone to Russia in 1805 he was appointed interpreter to the Russian embassy to China. The embassy proceeding nearly 200 m. into Mongolia, was ordered by the Chinese emperor to return, but Klaproth took the opportunity of exploring Siberia. He was soon after dispatched on a scientific mission to the Caucasus; the results of his valuable explorations are contained in his *Reise in den Kaukasus und*

Georgien in den J. 1807 *und* 1808 (2 vols. Halle, 1812–14; French, with numerous additions, Paris, 1823). While in Russia he received many honors. In 1812 he left the Russian service, and returned to Germany; but finally settled at Paris in 1815, where he died Aug. 20, 1835. Klaproth's literary activity, especially after 1815, was something prodigious; yet, strange to say, it was accompanied by an excessive love of pleasure, for the gratification of which Paris afforded him only too many facilities. His writings relate to the languages and history of the east, more particularly of China, and to the geography of the Russian empire; they are marked by immense learning and extraordinary acuteness, but unfortunately they also contain the most virulent attacks on other scholars. Among his works we may mention *Geographisch-historische Beschreibung des Oestlichen Kaukasus* (Weim. 1814); *Beschreibung der Russ. Provinzen zwischen dem Kaspisee und Schwarzen Meere* (Berl. 1814); *Verzeichniss der Chines. und Mandschuischen Bücher und Manuscripte der Königl. Bibliothek in Berlin* (Paris, 1822); *Asia Polyglotta* (with tables, 1823; 2d edit., Paris, 1829, with a life of Buddha according to the Mongolian legends), a work in which the various Asiatic nations are classified according to the affinities of their languages, and the beginning of their authentic history determined; *Tableaux historiques de l'Asie depuis la Monarchie de Cyrus jusqu'à nos jours* (4 vols. Paris, 1824–26, with 24 maps); *Mémoires relatifs à l'Asie* (Paris, 1834); *Collections d'Antiquités Egyptiennes* (Paris, 1829); *Examen Critique des Travaux de M. Champollion jeune sur les Hiéroglyphes* (Paris, 1832); *Notice d'une Mappemonde et d'une Cosmographie Chinoises publiées en Chine, l'une en* 1730, *l'autre en* 1793 (Paris, 1833).

KLAPROTH, Martin Heinrich, 1743–1817; b. Saxony; an analytical chemist of distinction and ability. The value of the improvements which he introduced into practical analysis can hardly be overrated, as he completely revolutionized the science of mineralogy through his discoveries in this direction. He is noted among scientists as the discoverer of tellurium, titanium, zirconium, and uranium among metals. He was a faithful and earnest advocate of Lavoisier, as to the latter's theories and discoveries. Klaproth received many honors, being a member of the institute and professor of chemistry in the university of Berlin, besides being a member of the royal academy of arts and of the royal Berlin academy of sciences. He was also professor of chemistry in the royal mining institute.

KLAT'TAU, a t. of Bohemia, in a fertile district, 68 m. s.w. of Prague. It contains a castle and gymnasium, and carries on manufactures of woolen cloth and leather. Pop. '80, 8,986.

KLAU'SENBURG, (Hungarian *Kolosvár*), one of the chief cities in Transylvania, is situated on the little Szamos, 80 m. e.s.e. of Grosswardein. It is surrounded by old walls, and is divided into the old and the new town. Among its public buildings are a university, a lyceum, a gymnasium, several hospitals and other institutions, benevolent and educational. Woolens, earthenware, and paper are manufactured. The trade of Klausenburg is not important. Pop. '80, 29,923.

KLAUS'THAL, a celebrated mining t. of Hanover, on a bleak plateau of the upper Harz, 25 m. n.e. of Göttingen. Situated 1792 ft. above sea-level, so that the potato is the chief crop that can be cultivated with success, the inhabitants find their principal employment in the mines and foundries. The ores raised are silver, lead, zinc, copper, and iron; 2,000 workmen are employed in the mines and 1000 in the foundries. Zellerfeld, divided from Klausthal by a brook, is also a mining center. Although the arrangements and appointments of the mines are very complete, yet their produce has greatly declined. They have all become the property of the Prussian government, and are managed for it. Pop. '80, including Zellerfeld, 13,397.

KLEBER, Jean Baptiste, a distinguished general of the French republic, b. Mar. 6, 1753, at Strasburg, where his father was a garden-laborer. Having received a good education he entered the Austrian army, but returned to France, and embracing the cause of the revolution, rapidly rose to high military rank. He accompanied Bonaparte to Egypt as a general of division, was dangerously wounded at the capture of Alexandria, but recovered so as to take part in the expedition to Syria, and won the battle of Mt. Tabor. When Bonaparte left Egypt he intrusted the chief command there to Kleber, who concluded a convention with commodore Sidney Smith for its evacuation; but on admiral Keith's refusal to ratify this convention, Kleber adopted the bold resolution of reconquering it, and destroyed the Turkish army at Heliopolis. During an attempt to conclude a treaty with the Turks, Kleber was assassinated by a Turkish fanatic at Cairo, June 14, 1800.

KLEE'NÉ BOC (Dutch, little goat), or Cape Guevei (*antilope perpusilla* or *pygmæa*, or *cephalopus pygmæa*), a very small species of antelope, very plentiful in s. Africa. It is only about a foot high at the shoulder; the limbs are slender, the head long and pointed, the horns very short; the color slaty brown. It lives singly or in pairs, in bushy districts, and is very nimble and active. Similar species are found in western Africa.

KLEIST, Heinrich von, 1776–1811; b. Frankfort-on-the-Oder; a poet and novelist. Abandoning the study of law he engaged in the Prussian civil service, which he relinquished for literature. He fought in the Prussian army against France, and was imprisoned during the French occupation of Berlin. Disappointed in his hopes and

plans he committed suicide in 1811. He was one of the most original of German poets, Gervinus placing him above all the dramatists of his time. Among his works, including dramas, lyric poems, novels, and tales, the most important are: *The Prince of Homburg; The Battle of Hermann; Michael Kohlhaas.*

KLEMM, Friedrich Gustav, 1802–69; educated at the university of Jena, appointed assistant librarian at Dresden, 1814, and chief librarian in 1852. He has published *The History of Bavaria; Women; Fifty Years Ago,* etc.

KLENZE, Leo Chevalier von, a distinguished German architect, was b. in 1784, in the principality of Hildesheim, and having studied architecture in Berlin and Paris, was appointed architect to king Jerome of Westphalia in 1808; held a similar position at the court of Bavaria from 1815 to 1839, and in 1833 was raised to the rank of hereditary nobility in that kingdom. In 1834 he was sent to Athens, to superintend the reconstruction of that capital, and in 1839 went to St. Petersburg, to execute some works for the emperor of Russia. Many of the finest buildings recently erected on the continent of Europe are monuments of Klenze's genius, such as the Glyptothek, the Pinakothek, the Walhalla, and many other structures in Munich, the imperial museum at St. Petersburg, and several buildings in Athens. Klenze is the author of several works, chiefly on the subject of architecture. He died in 1864.

KLEPTOMA'NIA (Gr. *klept,* to steal). Among the ordinary phenomena of minds that are not regarded as insane or criminal are observed inordinate tendencies to acquire, to collect, to hoard. So long as such an impulse does not interfere with the rights and property of others, or involve a flagrant breach of law, it is readily admitted as an indication of disease, or as an absurdity and eccentricity which may fairly consign the individual to an asylum or to contempt, but concerns no one else. But whenever the amount of the object appropriated, or the circumstances under which it is purloined, bring the matter into a court of law, the act is treated as a theft, and punished. In many cases, however, such conduct is the obvious result of disease. The inclination to steal is a premonitory indication of many forms of mental disorder: it is a characteristic symptom of many others, where violence, or delusions, or incoherence, leave no doubt as to the source from which it springs. But there are other cases in which the morbid origin cannot be so clearly demonstrated—where the mind is clear and cogent, the morals pure, and where theft is the only proof of insanity. There is evidence, however, in favor of the opinion, that the propensity to acquire may become so irresistible, and the will so impotent, that the appropriation is involuntary, and the perpetrator irresponsible. The gratification of the impulse is found associated with physical changes and conditions which may be regarded as incompatible with the healthy discharge of the functions of the nervous system; but the connection is not invariable, and the best mode of establishing the reality of such a disease is to consider marked cases in relation to the character, interests, and previous deportment of the individual—to the nature of the articles taken—and to the motives which seem to have determined the action. A baronet of large fortune stole, while on the continent, pieces of old iron and of broken crockery, and in such quantities that tons of these collections were presented to the custom-house officers. A clergyman of respectable bearing and great usefulness abstracted from book-shops and stalls hundreds of copies of the Bible, perhaps with the intention of distribution. A physician pocketed some small object whenever he entered the apartment of a patient; another member of this profession stole nothing but tablecloths. The incongruities in such narratives point to the existence of deep-seated unhealth. Although each case must be tested on its own merits, there are various features, common to a number of even doubtful cases, which should be embraced wherever a judgment is formed. The objects are often stolen ostentatiously, or without any adequate precautions to conceal the attempt; they are of no value in themselves, or useless to the thief; the act is solitary, independent, without motive, and promptly and spontaneously avowed, and, if overlooked, repeated. The article acquired is restored, or altogether disregarded; and although money is rarely taken, bright and colored objects most generally excite cupidity. It is observed in extreme youth; it is associated with pregnancy; it is hereditary; and often follows affections of the brain, and those critical and crucial changes in disposition which are only explicable on the supposition of corresponding alterations in the organization.—*A Manual of Psychological Medicine,* by Drs. Bucknell and Tuke, pp. 224 *et seq.; Ann. Med. Psychol.;* t. v. p. 666 (1853).

KLIAZ'MA, a river of Russia, an affluent of the Oka, rises in the government of Moscow, and flows e. through those of Vladimir and Nijni-Novgorod, joining the main stream near the town of Gorbatof after a course of 327 m., for the last 150 of which it is navigable. Passing through the most industrial governments of Russia, it is one of the principal commercial arteries of the empire.

KLIEFOTH, Theodor Friedrich Dethlef, D.D., b. Mecklenburg, Prussia, 1810. He is the head of the old Lutheran party, and has written several books on the liturgy of the German Lutheran church, besides commentaries on the prophets Ezekiel and Daniel.

KLIKI'TAT, a co. in s. Washington territory, having the Columbia river for its southern and eastern boundary, separating it from Oregon; 2,400 sq.m.; pop. '80, 4,055. It is

drained by Klikitat river, emptying into the Columbia and forming part of its western border, and by Yakima river in the n.e. In the n.w. is Mt. Adams, one of the loftiest peaks of the Cascade range, 9,570 ft. in height. Its surface presents a large area of prairie and open country, suitable for stock raising, with immense forests, and an extensive plain called the Klikitat prairie. Among the products of its soil are barley, oats, and rye. County seat, Goldendale. Pop. of co., '84, 5,685.

KLIKI'TATS, a native American Indian word signifying *robbers*, and characteristically applied as the name of a tribe of Indians in Washington territory, distinguished for their predatory habits. This tribe, allied by blood to the Nez Percés and Walla Wallas, are distinguished only by habitat from the Yakimas, with whom they were consolidated in 1855 by the U. S. government, and placed on a reservation about Fort Simcoe, near the coast range.

KLING'ER, Friedrich Maximilian von, 1753–1831; b. Frankfort, Germany; studied at the university of Giessen, and at an early age began to write plays. He served as a volunteer through the war of the Bavarian succession, and in 1780 entered the Russian service, in which he remained for 40 years, and attained the rank of lieut.gen. He wrote a number of works, of which his drama, *Sturm und Drang* (Storm and Stress), is alone noteworthy as having given its name to that period of literary agitation and uncertainty which preceded the appearance of Goethe and Schiller.

KLINKET, a term in fortification signifying a small postern or gate in a palisade.

KLIPSPRINGER (Dutch, cliff-springer), or Kainsi (*antilope oreotragus*, or *oreotragus saltatrix*), a species of antelope, about equal in size to the chamois, and resembling it in habits, found in the highest mountainous districts of south Africa. It is of a yellowish-gray color, and the hair is long, and stands out from the skin so as to make a rough fur. The legs and the general form are more robust than in most species of antelope. The flesh of the klipspringer is particularly esteemed; the hair is also valued for stuffing saddles; and it has therefore become rare in localities where it was once common. The pinnacles and precipices in which it delights make hunting it with dogs impossible, but to get within rifle-shot of it is not difficult.

KLOPSTOCK, Friedrich Gottlieb, a German poet, was b. July 2, 1724, at Quedlinburg, and went to Jena in 1745 to study theology. He had already formed the resolution to write a great epic poem, and thought of Henry the fowler as a good subject for one; and at Jena he composed the first cantos of his *Messiah*. In 1746 he passed to Leipsic, and there became acquainted with the editors of the *Bremische Beiträge*, in which the first three cantos of the *Messiah* appeared in 1748. They attracted great attention: the author was pronounced a religious poet of the highest order. He was now invited to Copenhagen, upon the recommendation of the minister Bernstorff, and introduced to the king whom he accompanied on his travels. In 1771 Klopstock settled in Hamburg, with a sinecure appointment and a pension from the Danish government, and subsequently received an honorary title and a pension from the markgraf, afterwards grand duke of Baden. In 1773 the last five cantos of his *Messiah* were published at Halle. He died Mar. 14, 1803. Klopstock's name has (or rather perhaps *had*) a very high place in German literature. Whatever may be thought of the intrinsic value of his poetry, it cannot be denied that he exercised a very important and beneficial influence on the national taste. The greatest of his successors, Goethe, acknowledged this, though he also expressed the opinion, that Klopstock had become rather obsolete, or at least that his conception of poetry had become so. When Klopstock first began to write, the literature and social life of Germany were penetrated by French influences. A cold, correct, unimaginative spirit tyrannized over the thought and habits of the people. Klopstock broke loose at once from this shallow despotism, and breathed the air of freedom into German poetry. Odes, tragedies—in which he introduces Hermann (q.v.) the Cheruscian as a national hero—and biblical dramas, with some hymns, which still find a place in collections, constitute the remainder of Klopstock's poetry. His works were collected and published in 12 vols. (Leip. 1799–1817), in 18 vols. (1823–29), in 9 vols. (1839). The *Messiah* has been translated both into verse and prose in English.

KNAPP, Albert, a German poet, author of many of the best modern German hymns, was a native of Würtemberg, and was b. in 1798. He studied for the church, and became the principal clergyman in Stuttgart. Knapp breathed a new life into that long-neglected branch of poetry—the religious hymn. Many of his effusions are to be found in the *Christoterpe*, a periodical edited by him since 1833. His *Christliche Gedichte*, in 2 vols. (Stuttg. 1829; 3d edit., Basel, 1843), to which a third was added under the title of *Neuere Gedichte* (Stuttg. 1834), were published by his friends. His later hymns are contained in his *Gedichte* (Stuttg. 1843). Knapp was equally distinguished as a hymnologist. His *Evang. Liederschatz für Kirche und Haus* (2 vols. 1837) is a valuable collection of Christian hymns of all ages, to which his *Christenlieder* (Stuttg. 1841) forms a splendid supplement. The *Bilder der Vorwelt* appeared in 1862. His *Hohenstaufen* (Stuttg. 1839) is a cycle of religious poems. He died in 1864.

KNAPP, Georg Christian, d.d., 1753–1825; studied at Halle and Göttingen, and in 1782 became ordinary professor of theology at Halle. The system of theology which he adopted was what is known as rational supernaturalism. His *Vorlesungen uber die*

Christliche Glaubenslehre (Lectures on Christian Theology) has been translated by the late Dr. Leonard Woods of Bowdoin college.

KNAPP, Jacob, 1799–1874; educated at Madison university, Hamilton, New York, and entered the Baptist ministry. He applied to the New York state Baptist convention in 1832 for an appointment as missionary, and on their declining his request he began to preach as an evangelist on his own responsibility. In this capacity he preached in all the principal towns of the United States, attracting large crowds and attaining great celebrity. In his autobiography, published in 1874, he claims to have made at least 100,000 converts in the first 12 years of his career as an evangelist.

KNAPP, Samuel Lorenzo, ll.d., 1784–1838; graduated at Dartmouth college, 1804, and became a member of the Massachusetts bar. He was connected with various newspapers in Boston from 1824 to 1827, when he removed to New York. Among his works may be mentioned *Travels of Ali Bey* (1818); *Biographical Sketches of Eminent Lawyers, Statesmen, and Men of Letters* (1821); *Lectures on American Literature* (1829); *American Biography* (1833); and *Life of Aaron Burr* (1835).

KNAPSACK, a bag of canvas or skin, containing a soldier's necessaries, and worn suspended by straps between his shoulders. Those used in the British army are ordinarily of black painted canvas; but some other nations, as the Swiss, make them of thick goat-skin, dressed with the hair on. The knapsack affords by far the easiest way of carrying light personal luggage during a march or walking tour.

KNAPWEED. See Centaurea.

KNARESBOROUGH, a parliamentary borough and market t. of England, in the West Riding of Yorkshire, on the left bank of the Nidd, 18 m. w.n.w. of York. St. Robert's cave, in the vicinity, is well known for the murder committed there by Eugene Aram in 1745. Manufactures of linen and cotton goods are carried on here. Knaresborough returned two members to the house of commons till 1867. It now returns one. Pop. '81, 5,000.

KNAUS, Ludwig, b. Wiesbaden, 1829; studied at Düsseldorf and Paris. He is a *genre* painter of considerable merit, excelling particularly in the delineation of rustic scenes. He was made Prussian minister of art in 1874.

KNAVESHIP, in the law of Scotland, is a proportion of the grain given to the miller's servant who performs the work of the mill, such mill being an ancient mill to which a right of thirlage is attached. See Thirlage; Insucken Multures.

KNEADING BY MACHINERY. Every person who has witnessed the making of bread by the ordinary process must have felt the necessity of some means for avoiding the contact of hands, often not too clean, with the dough, and the very laborious exertions requisite for kneading it thoroughly. On the continent, where bread-making is treated in a much more scientific way than in Britain, every operation is now conducted on a large scale by the aid of admirable machinery; and the forms of kneading-machines are very various—the general principle being, however, the same in all. In France, where they are called *Pétrisseurs*, this machine consists of an iron cylinder in which an axle works, and around which are set a number of curved, blunt metal blades. The upper half of the cylinder opens for the supply and removal of the dough. In the large bakeries they are worked by steam power; in the smaller ones by hand. Kneading-machines are now becoming common in England.

KNEE, in ship-building, an angular piece of wood or iron used to connect the deck-beams with the ribs of the vessel's sides. The knees are fastened on both vertically, above and below, and horizontally, whereby great stability is imparted to the whole framework of the ship.

KNEE-JOINT, The, is the articulation between the femur or thigh-bone, above, and the tibia or shin-bone below. A third bone, the patella, or knee-cap—one of the sesamoid bones (q.v.), and not a true bone of the skeleton—also enters into the structure of this joint anteriorly. The articular surfaces of these bones are covered with cartilage, lined by a synovial membrane or sac, which is the largest and most extensive in the body, and connected together by ligaments, some of which lie external to the joint, while others occupy its interior.

The most important of the external ligaments are the anterior or *ligamentum patellæ*, which is in reality that portion of the *quadriceps extensor cruris* which is continued from the knee-cap to the tubercle of the tibia; one internal, and two external lateral ligaments; a posterior ligament; and a capsular ligament, which surrounds the joint in the intervals left by the preceding ligaments. The positions of these ligaments are sufficiently indicated by their names. Of the internal ligaments, the two crucial, so called because they cross one another, are the most important. The external and internal semi-lunar cartilages are usually placed amongst the internal ligaments; they are two crescentric plates of cartilage. The outer part of each cartilage is thick; the inner free border thin. Each cartilage covers nearly the outer two-thirds of the corresponding articular surface of the tibia, and by its form deepens these surfaces for firmer articulation with the condyles of the femur.

The chief movements of this joint are those of a hinge-joint—namely, flexion and extension, but it is also capable of slight rotatory motion when the knee is half-flexed. During flexion the articular surfaces of the tibia glide backwards upon the condyles of the femur; while in extension they glide forwards. The whole range of motion of this joint, from extreme flexion to extreme extension, is about 150°. Judging from its articular surfaces, which have comparatively little adaptation for each other, it might be inferred that this was a weak and insecure joint; and yet it is very rarely dislocated. Its real strength depends on the large size of the articular ends of the bones, on the number and strength of the ligaments, and on the powerful muscles and fasciæ by which it is invested.

KNEELAND, Abner, 1774–1844; was first a Baptist preacher, then a Universalist, and finally a Deist. From 1821 to 1823 he edited a periodical in Philadelphia; in 1828 he edited the *Olive Branch* in New York; and in 1830 founded in Boston the *Investigator*, a weekly expositor of his deistical views, and which is still in existence. He was also for several years in Boston the instructor of a deistical society meeting in Julien hall; and in 1830, when William Lloyd Garrison had sought in vain for a church or hall in which to speak upon slavery and was about to resort to the common, Mr. Kneeland and his friends offered him the use of the hall under their control, and there his lectures were delivered. In 1836 he was tried in the supreme court of Massachusetts for blasphemy, uttered in his own paper. The words chiefly relied upon to support the charge were: "He believes in a God, which I do not," the words being taken as a denial of God's existence. Mr. Kneeland, in his defense, declared that the comma after the word God was erroneously inserted, and that all he meant to affirm was that he did not believe in the same God that his opponent did. At the first trial the jury stood 11 for conviction and 1 for acquittal, the dissentient being Charles Gordon Greene of the *Morning Post* which had been but lately established. A second trial resulted in conviction and Mr. Kneeland was sentenced to imprisonment for a short term in the Boston jail. His conviction was disapproved by many earnest Christian men, who thought it an infraction of the true liberty of speech and calculated to bring Christianity into reproach. The rev. Dr. Channing and other eminent citizens united in a public protest against the prosecution. There has been no prosecution under the statute since that day, though hundreds of men have avowed their disbelief in God in terms far more offensive than those used by Mr. Kneeland. Public opinion upon the just limitations of the freedom of the press has greatly changed since that day. Mr. Kneeland died at Salubria, Ind. Among his publications were: *The Deist; Lectures on Universal Salvation; A Translation of the New Testament;* and *A Review of the Evidences of Christianity.*

KNEELAND, Samuel, b. Mass., 1821; studied at Harvard university, graduating from the medical school in 1843; studied medicine two years in Paris. Returning, he commenced the practice of medicine in Boston, also lecturing on anatomy in Harvard university. He contributed at that time to the *American Journal of Medical Science* and *Boston Medical and Surgical Journal*, and translated Audry's *Diagnosis of Diseases of the Heart.* He was five years secretary of the Boston historical society, and for two years in the same capacity in the American academy of arts and sciences. In 1866 he became secretary of the Massachusetts institute of technology, and a professor there. He has traveled extensively in Brazil, has visited Iceland, the Hawaiian islands, and the copper region around lake Superior, besides exploring other interesting regions—California, upper Mississippi, and Colorado. In the war of the rebellion he went out, in 1862, as a regimental surgeon under gen. Burnside, and also served in New Orleans and Mobile. In 1866 he accepted the position of secretary of the Massachusetts institute of technology, and also the chair of professor of zoology and physiology, which he now fills. He edited, with an introduction, Smith's *History of the Human Species*, 1851, and the *Annual of Scientific Discovery*, 1866–69, and contributed to the scientific periodicals. He was one of the writers on zoological and medical subjects in the *American Cyclopædia* and the *New American Cyclopædia*, furnishing over 800 articles. He published the *Wonders of the Yosemite Valley and of California* in 1871.

KNELLER, Sir Godfrey, an eminent portrait painter, was b. at Lübeck in 1648, and studied painting under Rembrandt and Ferdinand Bol. He at first chose historical subjects, but afterwards gave himself entirely to portrait painting. In 1674 he went to London, and, on the death of sir Peter Lely in 1680, was appointed court painter to Charles II. In 1684 he visited Paris, at the invitation of Louis XIV., and painted portraits of the king and royal family. He retained his office at the English court during the reign of James II., and continued to fill it after the revolution. In 1692 William III. bestowed on him the honor of knighthood, which he afterwards received also from the emperor Joseph I.; and in 1715 George I. made him a baronet. He died in 1725, or, according to others, in 1726, and a monument was erected to him in Westminster abbey, with a highly laudatory inscription by Pope. Kneller's best-known productions are the "Beauties of Hampton Court" (painted by order of William III.), and his portraits of the "Kit-Cat Club." He painted avowedly for the love of money, and hence never did justice to the talent he possessed, so that it is difficult for posterity to understand his reputation.

KNIAZ'NIN, Franciszek Dyonizy, 1750–1807; educated in the Jesuit school at Vitebsk, in Russia, and for a time secretary to prince Adam Czartoryski. He was a poet of decided merit, many of his verses showing a refined sentiment, and remarkable skill in versification. He translated the Latin poets, and even ventured on a translation into Russian of Macpherson's *Ossian*. The latter years of his life were clouded by mental derangement.

KNICKERBACKER, Daniel Buel, s.t.d. See page 892.

KNIEBIS MOUNTAINS, on the borders of Würtemberg and Baden, opposite Alsace. They are a part of the lower Black Forest range, and in them are situated the well-known watering-places, Griesbach and Freiersbach.

KNIGHT, Charles, an eminent English publisher and author, was b. in 1791 at Windsor, where his father carried on the business of a bookseller. Knight was brought up to the same profession, but early turned his attention to publishing. Among his first attempts in this department was *The Etonian*, a periodical supported by the Eton boys, and which, in spite of its juvenility, obtained a considerable reputation. He next started (1823) *Knight's Quarterly Magazine*, and continued it for some time in London, to which he removed in the following year. The whole of his honorable career was devoted to popular literature, of which he was one of the earliest and most accomplished advocates. He died Mar. 9, 1873. Among the works which Knight published or edited are the *Penny Magazine* (1832–45), which was started only a month or two after *Chambers's Edinburgh Journal*, and at one time enjoyed a circulation of nearly 200,000 copies weekly; the *British Almanac*, and *Companion to the Almanac; Penny Cyclopædia* (30 vols. 1833–56); *Library of Entertaining Knowledge*—the volume on the elephant (1831) being written by himself; *Pictorial History of England; Pictorial Bible* (1838), now the property of Messrs. Chambers; *Pictorial Book of Common Prayer* (1838); *London Pictorially Illustrated* (6 vols. 1841–44); *Old England, a Pictorial Museum of National Antiquities* (2 vols. 1845); *Half-hours with the Best Authors* (4 vols. 1847–48); *The Land We Live In* (4 vols. 1848); *Cyclopædia of the Industry of all Nations* (1851); and *The English Cyclopædia* (22 vols. 1854–61), which is based on the *Penny Cyclopædia*, but is a great advance even on that admirable work, and, in fact, forms one of the most complete and accurate cyclopædias in the world. Knight in addition won a highly respectable position as an author by his *Pictorial Shakespeare*, which is accompanied by a "biography" and a "history of opinion, with doubtful plays," etc. (8 vols. 1839–41); library edition (12 vols. 1842–44); national edition, with "biography" and "studies" (8 vols. 1851–53); *Life of Caxton* (1844); *Plays and Poems, with Glossarial Notes* (7th ed. 1857); *Knowledge is Power* (1855); and above all, by his *Popular History of England, an Illustrated History of Society and Government from the Earliest Period to our own Times* (1856–62). This work is probably the very best history of England that we possess—"*the* history," according to the *Times*, "for English youth."

KNIGHT, Edward H. See page 892.

KNIGHT, Richard Payne, 1750–1824; b. England; being a weak and sickly child, received no education until he was 14 years of age, when he was sent to school, and soon made marked progress in Greek and Latin. He visited Italy for his health, where he interested himself in the study of art and of classical antiquities, which with him became a passion. Having inherited large wealth, he was returned to parliament, and served from 1780 to 1806, when he retired, devoting the remainder of his life to study and authorship in the direction of recondite classical subjects. From 1814 he represented the Townley family as a trustee of the British museum. To this institution he bequeathed his splendid collection of ancient bronzes and Greek coins, valued at £50,000. He published *An Account of the Remains of the Worship of Priapus lately existing at Isernia, in the Kingdom of Naples*, etc.; *An Analytical Essay on the Greek Alphabet; An Analytical Inquiry into the Principles of Taste;* and an edition of Homer's *Iliad* and *Odyssey*, with prolegomena. He also wrote and published several poems, which added little to his fame. He was a close and intelligent interpreter of the meaning of ancient rites and customs.

KNIGHT, Thomas Andrew, 1758–1838; b. Herefordshire, England; graduated at Balliol college, Oxford; devoted himself to researches into vegetable and animal physiology. In 1795 he communicated to the royal society suggestions upon the inheritance of disease among fruit-trees, and upon the propagation of debility by grafting, which attracted much attention. His publications are: *A Treatise on the Culture of the Apple and Pear, and on the Manufacture of Cider and Perry; Pomona Herefordiensis, or Natural History of the old Cider and Perry Fruits of the County of Hereford.* After his death were published his *Physiological and Horticultural Papers*, with an instructive sketch of his life. He was president of the horticultural society after sir Joseph Banks. The progress of horticulture for the last half century is due largely, if not mainly, to his writings and practice. He is considered the best practical gardener of his day. He was a close observer, too, of the habits of animals, and one of his last papers to the royal society was on animal instinct.

KNIGHTS (Saxon, *Cniht*, a servant or attendant), originally men-at-arms bound to the performance of certain duties, among others to attend their sovereign or feudal superior on horseback in time of war. The institution of knighthood, as conferred by investiture, and with certain oaths and ceremonies, arose gradually throughout Europe as an

adjunct of the feudal system (see FEUDAL SYSTEM; CHIVALRY). The character of the knight was at once military and religious. The defense and recovery of the holy sepulcher, and the protection of pilgrims, were the objects to which, in the early times of the institution, he especially devoted himself. The system of knight-service, introduced into England by William the conqueror, empowered the king, or even a superior lord who was a subject, to compel every holder of a certain extent of land, called a knight's fee, to become a member of the knightly order; his investiture being accounted proof that he possessed the requisite knightly arms, and was sufficiently trained in their use. The "statute of knights," of the first year of Edward II., regulating the causes that were to be held valid to excuse a man from knightly service, shows that in the 14th c. the knightly office was not always eagerly coveted; yet its social dignity was very considerable, for even dukes, if not admitted into the order, were obliged to yield precedence in any royal pageant or public ceremony. In time of war, each knight was bound to attend the king for 40 days, computed from the day when the enemy arrived in the country. After the long war between France and England, it became the practice for the sovereign to receive money compensations from subjects who were unwilling to receive knighthood, a system out of which grew a series of grievances, leading eventually to the total abolition of knight-service in the reign of Charles II.

Knighthood, originally a military distinction, came, in the 16th c., to be occasionally conferred on civilians as a reward for valuable services rendered to the crown or community. The first civil knight in England was sir William Walworth, lord-mayor of London, who won that distinction by slaying the rebel Wat Tyler in presence of the king. Since the abolition of knight-service, knighthood has been conferred without any regard to property, as a mark of the sovereign's esteem, or a reward for services of any kind, civil or military. In recent times it has been bestowed at least as often on scholars, lawyers, artists, or citizens, as on soldiers, and in many cases for no weightier service than carrying a congratulatory address to court.

The ceremonies practiced in conferring knighthood have varied at different periods. In general, fasting and bathing were in early times necessary preparatives. In the 11th c. the creation of a knight was preceded by solemn confession, and a midnight vigil in the church, and followed by the reception of the eucharist. The new knight offered his sword on the altar, to signify his devotion to the church, and determination to lead a holy life. The sword was redeemed in a sum of money, had a benediction pronounced over it, and was girded on by the highest ecclesiastic present. The title was conferred by binding the sword and spurs on the candidate, after which a blow was dealt him on the cheek or shoulder, as the last affront which he was to receive unrequited. He then took an oath to protect the distressed, maintain right against might, and never by word or deed to stain his character as a knight or a Christian. A knight might be degraded for the infringement of any part of his oath (an event of very rare occurrence), in which case his spurs were chopped off with a hatchet, his sword broken, his escutcheon reversed, and some religious observances were added, during which each piece of armor was taken off in succession, and cast from the recreant knight.

It has been said that knighthood could originally be conferred by any person of knightly condition, but if so, the right to bestow it was early restricted to persons of rank, and afterwards to the sovereign or his representative, as the commander of an army. In England the sovereign now bestows knighthood by a verbal declaration, accompanied with a simple ceremony of imposition of the sword, and without any patent or written instrument. In some few instances, knighthood has been conferred by patent, when the persons knighted could not conveniently come into the presence of royalty, as in the case of governors of colonies, or other persons occupying prominent situations abroad. The lord-lieutenant of Ireland also occasionally, but rarely, exercises a delegated power of conferring knighthood. The monosyllable "sir" is prefixed to the Christian names of knights and baronets, and their wives have the legal designation of "dame," which in common intercourse becomes "lady."

Persons who are simply knights without belonging to any order are called in England knights *bachelors*, a name probably corrupted from *bas chevalier*. Knighthood of this kind is now only conferred in Great Britain. A degree of knighthood called *banneret* formerly existed in England and France, which was given on the field of battle in reward for the performance of some heroic act. For the mode in which that dignity was conferred, see BANNERET. No knight-banneret has been created in the field since the time of Charles I., when that honor was bestowed on one sir John Smith, for rescuing the royal standard from the hands of the rebels. George III. twice conferred the title on occasion of a review, but the proceeding was considered irregular, and the rank of the knights not generally recognized.

The form of helmet which the requirements of the later heraldry have appropriated to knights, entitling them to place it over their arms, is full-faced, of steel, decorated with bars, and with the visor a little open. It is represented under the article HELMET.

KNIGHTS (*ante*). According to Tacitus, the origin of knighthood was among the ancient German tribes, and consisted in conferring upon selected persons the privilege of citizenship, under the direct supervision of the authority of the state. The ceremony included the investiture of the candidate with a buckler and javelin, and appears to have

implied that, whereas he was before only a member of his immediate family, he now became a servant, or *cniht* (Saxon), of the state. But both the institution and the ceremony have been traced back as far as the foundation of Rome, when Romulus is said to have created the rank, the *curiæ* electing 300 *equites*, as they were called, from *equus*, a horse. In England king Alfred is said to have been the first to create a knight with the sword of state, in the case of Athelstane, A.D. 900. In the time of Henry III. of England the institution seems to have been based on a property qualification, since all persons possessed of ten pounds yearly income were forced to be knighted under penalty of a fine. The institution of knighthood as an order was, generally speaking, an event of the middle ages, and grew out of the disturbed condition of society, and the necessity for the weak to be protected by the strong. The feudal barons were at this time mostly marauding robbers, whose hands were against all men, and who particularly devoted themselves to plundering their neighbors of their women and their wealth. The church being specially the object of their predatory excursions, that institution, with a view to the protection of its enormous and increasing riches, turned the warlike spirit of the age to its advantage, and, by introducing the religious element into the investiture of knighthood, brought to the ceremony a specific character of solemnity which created a tenacious bond of attachment between the two. With that keen shrewdness which has always characterized the Roman Catholic church, the latent spirit of respect for woman which existed in the middle ages, even among the rude and savage populations of central Europe, was made a powerful element in the foundation of the new order. The virgin Mary became the special tutelary divinity of knighthood, and by parity of reasoning, the sex was added to the church, in the esteem of the order, as being under its protection.

This deference to woman and the church became thereafter the chief impelling motive, under whose impulse the knights of the middle ages were incited to deeds requiring the greatest daring, self-denial, and tenacity of purpose. Not unnaturally, and particularly among the rash and the young, abuses crept into the system, and wild and foolish exploits brought the order into such disrepute that it became possible for Miguel Cervantes, at the close of the 16th c., to compose his wonderful burlesque of knighthood, the immortal *Don Quixote*, and for that work to meet with public acceptance. Yet it is to be remembered that in no other instance, save perhaps those of the Roman Catholic church and the masonic order, has any merely human institution survived so long and accomplished so much of material good to mankind—on a basis of purely abstract qualities. The institution of the later orders of knighthood was occasioned by a desire to construct a reputable system of recognition of merit. Some of these were distinctively charitable in their nature, others simply orders of merit. Of these the names of 240 have been preserved in history.

KNIGHT'S FEE. See KNIGHTS.

KNIGHTS OF THE SHIRE, otherwise called in England knights of parliament. They were knights formerly chosen by the freeholders of every county to represent the county in parliament, and were originally inhabitants of the places for which they were chosen. See PARLIAMENT.

KNIGHT'S SERVICE, one of the ancient tenures in England (see KNIGHTS), which was abolished in the time of Charles II., and converted into freehold (q.v.).

KNIGHTS TEMPLARS. See TEMPLARS.

KNIPPERDOLLING, BERNARD, a noted leader of the fanatical Anabaptists of the 16th century. See ANABAPTISTS.

KNITTING, an art allied to weaving, but of comparatively modern date. The time and place of its invention are disputed Some historians insist upon Scotland having the honor, at a date somewhat before the year 1500; others assert that it came from Spain, in the time of Henry VIII.; but there is no proof that the silk stockings which were worn by that monarch were knitted, and in the absence of such proof the weight of evidence remains in favor of Scotland. Knitting consists in using a single thread, and with it forming a continual series of loops across the whole fabric; the next row passes through these, and they in their turn receive another set, until the whole is completed. Knitting is only employed to make small articles, such as stockings, gloves, etc.; and as it furnishes an easy and amusing employment for the hands, without engaging the attention much, it forms a useful and desirable occupation for ladies and others who do not require knitted articles as necessaries, for the knitting-machines have now rendered it impossible for hand-work to compete with them in point of economy or beauty of workmanship. See HOSIERY.

KNOBEL, KARL AUGUST, D.D., 1807–63; b. near Sorau, Silesia; an eminent German theologian and archæologist. He studied in Sorau under principal Scharbe. In 1831 he began lecturing, and by his freshness and power drew numerous hearers. In 1837 he received from Breslau the degree of doctor in theology for his able work on prophecy, and soon after the offer of a professorship in Göttingen, in Ewald's place, and of one in Giessen, which he accepted. He was a learned rationalist, and published during his 24 years at Giessen numerous works, among which were *Ecclesiastes* and several commentaries.

KNOBELSDORFF, Hans Georg Wenzeslaus von, Baron, 1697–1753; b. Brandenburg, Prussia. After serving in the army he studied architecture, and in 1740 was appointed director of royal buildings in Prussia by Frederic II., who, when crown-prince, had been his patron. He drew the plans for the Thiergarten and opera-house in Berlin, and for the famous Sans Souci palace at Potsdam.

KNOLLYS, Hanserd, 1598–1691; b. in Lincolnshire, England. He was educated at Cambridge university, and ordained a priest of the church of England, but, having changed his views of church government and of baptism, he was deposed for non-conformity, and compelled to flee to New England, where his stout attacks on infant baptism speedily involved him in controversy with the authorities. Cotton Mather nicknamed him "Mr. Absurd Knowless." He was the first minister at Dover, N. H., where he preached, 1638–41. In the latter year, after a short stay on Long island, he returned to London, where he died. He was an accomplished scholar, a fervent and powerful preacher, and a wise instructor of youth. Among his publications were a Hebrew grammar, and *A Flaming Fire in Zion*. His uncompleted autobiography was finished by another hand after his death. A "Hanserd Knollys society," formed in London in 1845, reprints early Baptist writings.

KNOT, a twist or loop in a rope or cord, so made that the motion of one piece of the line over the other shall be stopped. The knot owes its power of passive resistance to the friction of the rope. The uses of knots are infinite; in the commonest occasions of life one or two simple knots are indispensable; in building, mining, and almost every land occupation, knots of curious form are employed; while on shipboard, knots may be almost numbered by the dozen, and each is appropriated to a specific duty.

The simplest knot is the "overhand." Its use is to form a knob in a rope to stay it from slipping. By a slight alteration, the "single sling," or slip knot, is obtained, always in the middle of the rope. More complicated, but still more useful, is the "double sling," for suspending a beam or bar horizontally. The bow-line knot serves to give a tight grasp round a pole or beam, which would occupy the loop, or, drawn close on the rope, it forms a large knob, to prevent the rope passing a hole. The sheep-shank affords a means of shortening a rope temporarily, without diminishing its power of rectilineal tension. All the foregoing have been at the double or middle parts of the rope.

For modes of joining two ropes, the weaver's or fisherman's knot may be adduced as strong and neat. The sailor's knot has the advantage, when properly made, of resisting all separating strain on the two ropes, and at the same time of being loosened immediately by a pull at one of the short ends. For an interlacing of two doubled ropes, the "Carrick bend" has no superior; the point of junction cannot slip, and the moment the tension ceases, the two ropes are again free from each other. Knots have many technical names, such as bight, hitch, etc.

KNOT, an expression used in speaking of a ship's way through the water, and, as such, representing miles. The log-line is divided by knots into lengths, each of which is to a geographical mile as half a minute is to an hour—i.e., as 1 to 120. The log being cast overboard, note is carefully taken of how many of these knots run out in a half minute, and it follows that the vessel is passing through the water at the same number of geographical miles per hour. The proportion of a geographical to a statute mile being nearly that of 7 to 6 (see Mile), a vessel making 12 knots an hour is in reality traveling at the rate of 14 statute miles.

KNOT (*Tringa canutus*), a bird of the family *scolopacidæ*, and of the same genus with the dunlin, stints, etc. It is sometimes called the Red Sandpiper. Its whole length is about ten inches. The general color, in summer, is reddish-brown, finely mingled with black, gray, and white; in winter, the plumage becomes mostly ash-gray, and on the under parts white. The knot frequents high northern latitudes in summer, and breeds there; but migrates southwards in winter, and is then found, sometimes in large flocks, in Europe, Asia, and America, as far south as the West Indies, chiefly on flat sandy shores. It runs about with great activity as the wave retires, seeking its food on the sands. Its food consists in great part of small bivalve mollusks, which it swallows shell and all. It is in high esteem for the table.

KNOT-GRASS. See Polygonum.

KNOTS of different kinds are borne by different families as heraldic badges, and are occasionally introduced as charges in shields. The forms of some of them appear to be suggested by the initial letter of the name or title of the bearer. In the Wake and Ormonde knot it is not difficult to trace a *W* and two *O*s. The Bourchier knot, as seen on the tomb of archbishop Bourchier, at Canterbury, bears a resemblance to two *B*s, and the Stafford knot to two *S*s. The Lacy knot contains within it a rebus on the four letters of the name Lacy.

KNOTT, J. Proctor, b. Ky., 1830. After studying law he removed to Missouri in 1850, and ten years afterwards was attorney-general of that state. In 1862 he returned to Kentucky, and was elected to congress by the democratic party in 1866, 1868, and 1870, and from 1874 to 1880 inclusive. He earned notoriety by several humorous speeches, especially by one in which he ridiculed the town of Duluth, Minn., which

at that time was just rising into importance and demanding large appropriations from the government.

KNOWLES, James Davis, 1798–1838; b. Providence, R. I.; graduated at Columbian college, D. C., in 1824. In 1825 he became pastor of the Second Baptist church in Boston, where he remained until 1832, when he accepted an appointment as professor of sacred rhetoric in the Newton (Mass.) theological institute. He published memoirs of the first Mrs. Adoniram Judson (Ann Hasseltine), missionary to Burmah, India, and of Roger Williams, and was for some time editor of the *Christian Review*.

KNOUT, properly *knut*, a scourge composed of many thongs of skin, plaited, and interwoven with wire, which was formerly the favorite instrument of punishment in Russia for all classes and degrees of criminals. The offender was tied to two stakes, stripped, and received on the back the specified number of lashes; 100 or 120 were equivalent to sentence of death, but in many cases the victim died under the operation long before this number was completed. If a culprit survived this punishment he was banished for life to Siberia. The whipping was inflicted by a criminal, who preferred this office to exile to Siberia, and who was constantly kept in prison, except when his services were required. The nobility were legally exempt from the knout, but this privilege was not always respected. In earlier times the nose was slit, the ears were cut off, and the letter V for *vor* (rogue) was branded on the forehead; but this aggravation was abolished by Alexander I. The knout was abolished by the emperor Nicholas, who substituted the *pleti*, a kind of lash.

KNOWLEDGE. This term of common use is associated with the greatest problems and controversies of philosophy. The perception of the external or material world (see Common Sense; Perception), the nature of belief (see Belief), the ultimate analysis of a proposition or judgment (see Judgment), are all involved in the discussion of what is meant by knowledge. Moreover, we may, in connection with this word, take up the consideration of thought or intelligence on the whole, in contrast to the feelings and volitions (see Intellect). In a still different phase of meaning, we may be led to consider the nature of science or philosophy, which is a species of knowledge distinguished by the two features of being *generalized*, as distinct from individual or particular facts, and being *verified* or attested by careful evidence, in contrast to the loose assertions that satisfy the ordinary run of mankind.

A distinction, considered by sir W. Hamilton and others to be of great importance in metaphysical philosophy, is that of immediate or presentative, and mediate or representative knowledge. The one is the knowledge or cognizance that we have of the modifications of our own minds, so to speak, without inferring anything beyond, as in our various sensations and emotions. When we are affected by cold or heat, hunger, thirst, odor, or sound, we are conscious of a something, which may be said to be wholly contained in our own minds; but when a present modification of the mind is looked upon not for its own sake, but as bodying forth something more than itself, as in memory, our knowledge is then said to be mediate. Thus, an actual sensation is immediate, but a recollection, or idea, or imagination is mediate and representative. Mr. Mansel makes this distinction the basis of his division of the mind. "Consciousness," he says, "in its relation to the person conscious, is of two kinds; or rather, is composed of two elements—the presentative, or intuitive, and the representative, or reflective. The phenomena of the former class may be distinguished by the general name of *intuitions;* those of the latter, by that of *thoughts.*"

It will appear from the above remarks that there is no question connected with knowledge that does not fall to be discussed under some other head; and as a general rule, it is best to take up the difficult problems of the philosophy of mind under those names that severally suggest each in its singleness, instead of confusing a multitude together.

KNOWLES, James Sheridan, an English dramatist, was the son of James Knowles, an eminent teacher of elocution, and author of a *Dictionary of the English Language.* He was born at Cork in 1784. The family removed to London in 1792, and here young Knowles received his education. After holding for some time a commission in the army, he became an actor, and made his first appearance at the Crow Street theater, Dublin; but he never attained much eminence in this profession. Subsequently, he lived for several years in Belfast and Glasgow, as a teacher of elocution, and it was at this time he laid the foundation of his fame as a dramatist. His *Caius Gracchus* was first performed at Belfast in 1815. It was followed by *Virginius*, his most effective piece, afterwards recast for the London stage, where Macready took the principal part. He wrote thirteen other plays, but none of his productions exhibit great genius; they are, however, unquestionably the best "acting plays" produced by an Englishman in modern times. About the year 1845 he relinquished the stage from religious scruples, and in 1852 joined the Baptist body. He latterly distinguished himself by his religious zeal. In 1851 he published a little controversial work, displaying considerable acuteness, *The Idol Demolished by its own Priest*, in answer to cardinal Wiseman's lectures on transubstantiation. Knowles died at Torquay in 1862. A publication of his *Lectures on Dramatic Literature* began in 1876.

KNOWLTO'NIA, a genus of south African plants, of the natural order *ranunculaceæ,* with flowers resembling those of *Adonis,* and succulent fruit. *K. vesicatoria,* which has bi-ternate leathery leaves, and flowers in few-flowered umbels, is remarkable for its acridity and blistering power. The bruised leaves are used at the cape of Good Hope instead of cantharides; they raise a blister in half an hour, and it keeps open a long time. The sliced root seems to be still more powerful.

KNOW-NOTHINGS, a secret political society, organized in the United States in 1853, which rapidly gained the ascendency in several states, and then as rapidly declined. Its principles and objects, as set forth in a convention of the party in New York in 1855, were as follows: "The Americans shall rule America; the union of these states; no north, no south, no east, no west; the United States of America, as they are, one and inseparable; no sectarian interferences in our legislation, or in the administration of American law; hostility to the assumption of the pope, through the bishops, etc., in a republic sanctified by Protestant blood; thorough reform in the naturalization laws (requiring 21 years' residence of all foreigners previous to voting); free and liberal educational institutions for all sorts and classes, with the Bible, God's holy word, as a universal text-book." Strenuous efforts were made, by means of the new excitement created by this society, to supersede the antislavery agitation, which was then rapidly increasing; but in 1856 the latter swallowed up the former, and the larger portion of the know-nothings united with the republicans in nominating John C. Fremont for president, a minority presenting Millard Fillmore as their candidate. This division was fatal to the organization, which soon afterwards fell to pieces and has never been renewed. In 1855 a society called "know-somethings" was formed to oppose the one herein described, but it shared the fate of the earlier association.

KNOX, a co. in n.w. Illinois; 720 sq.m.; pop. '80, 38,344. It contains considerable deposits of coal, and has a fertile soil. Agriculture is the chief occupation, but there is much manufacturing of carriages, saddlery, brick, and hardware. The Chicago, Burlington and Quincy railroad passes through. Co. seat, Galesburg.

KNOX, a co. in s.w. Indiana, bordering on Illinois; 513 sq.m.; pop. '80, 28,324. Agriculture is the principal pursuit. The surface is level and fertile. Co. seat, Vincennes.

KNOX, a co. in s.e. Kentucky, on both sides of the Cumberland river; 340 sq.m.; pop. '80, 10,587. It is mountainous, with deposits of iron, coal, and salt. The chief products, besides live stock, are corn, oats, wheat, and potatoes. Co. seat, Barboursville.

KNOX, a co. in s. Maine, bounded e. by Penobscot bay, s. by the Atlantic; intersected by the Medomac river, and comprises several islands; 330 sq.m.; pop. '80, 32,862. The surface is uneven, the soil fertile. The staples are potatoes, hay, and butter. A part of the population are engaged in navigation and the fisheries. The county has extensive quarries of limestone, and much lime is exported. There are numerous manufactories for carriages, saddlery, and woolen goods; many tanneries and flour and saw mills. The Knox and Lincoln railroad connects Bath with Rockland, the co. seat.

KNOX, a co. in n.e. Missouri; traversed by the Quincy, Missouri and Pacific railroad; 504 sq.m.; pop. '80, 13,047. The surface is nearly level, with considerable timber. The soil is very fertile, and much wool, tobacco, and grain are raised. Brick and carriages are made. Co. seat, Edina.

KNOX (formerly L'Eau qui Court), a co. in n.e. Nebraska, on the Missouri and Niobrara rivers; 1000 sq.m.; pop. '80, 3,666. The soil is adapted to grazing and raising of grain.

KNOX, a co. in central Ohio, drained by the Vernon, Walhonding and north fork of the Licking rivers; traversed by the Lake Erie division of the Baltimore and Ohio railroad, and connected with Cleveland by the Cleveland, Mt. Vernon and Columbus railroad; 530 sq.m.; pop. '80, 27,450. It has an undulating surface and fertile soil. The chief products are wheat, oats, maize, potatoes, tobacco, wool, butter, and pork. A large quantity of maple-sugar is made. There are numerous factories for carriages, sash, blinds and doors, tin, copper and sheet-iron ware, and woolen goods; also tanneries and flour and saw mills. Co. seat, Mount Vernon.

KNOX, a co. in e. Tennessee; traversed by the Holston river, whose valley is exceedingly fertile; 575 sq.m.; pop. '80, 39,124. The surface is diversified by several mountain ridges; and iron and marble abound. The raising of cattle is an important industry, and grain, wool, and tobacco are largely produced. It is intersected by the railroads which run into Knoxville. Co. seat, Knoxville.

KNOX, a co. in n. Texas, about the Brazos river; 1275 sq. miles. It contains extensive coal deposits. The surface is uneven, with some prairie. Pop. '80, 77.

KNOX, Henry, 1750–1806; b. Boston, where he was engaged in business as a bookseller up to the outbreak of the revolutionary war. He was present at the battle of Bunker Hill as an aid to gen. Artemas Ward, and soon afterwards joined a regiment of artillery. He was soon placed in charge of artillery in New York, upon whose evacuation he took part in the campaign in New Jersey, where by his skillful handling of the artillery he prevented Cornwallis from passing the Assumpink river, and the next day, Jan. 3, 1777, he took part in the engagement at Princeton. He was promoted to a brig.

adier-generalship, and took a prominent part in the battles at Brandywine, Germantown, and Monmouth, and at the siege of Yorktown. He was made a maj.gen., and after hostilities had ceased he superintended the disbandment of the army. He was secretary of war (which office included at that time the supervision of the navy) from 1785 to Dec., 1794. Upon his retirement from office he settled on his estates in Maine.

KNOX, JOHN, the great Scottish reformer, was b. in the year 1505, in a suburb of Haddington called Gifford Gate, where a small field still goes by the name of "Knox's Croft." The social position of his parents is not very clearly ascertained. His own statement is that "his great-grandfather, gudesehir, and father served under the earls of Bothwell." He is supposed to have come of an old and respeetable family, the Knoxes of Ranfurly, in Renfrewshire. He received his early edueation at the grammar-school of Haddington, and in the year 1521 went to the university of Glasgow. He was there a pupil under Major, and soon proved himself an apt and distinguished disputant in the scholastic theology. He was considered as likely to rival his master in the subtleties of the dialectic art. From the same teacher he no doubt derived his first impulse to that freedom of politieal opinion and independenee of thought that afterwards characterized him. He is said to have been ordained before the year 1530, about which time, or shortly afterwards, he went to St. Andrews and began to teach there. There is, however, at this stage of his life a gap of 12 years, or nearly so, which the most careful research has hitherto failed to fill up. His attachment to the Romish church is supposed to have been shaken chiefly by the study of the fathers, about 1535; but he did not openly profess himself a Protestant till about 1543. He was degraded from his orders, and being even in danger of assassination, took refuge with Douglas of Longniddry, and there remained till the end of 1545.

Cardinal Beaton was at this time in the height of his power; after seizing George Wishart at Ormiston he had him brought to St. Andrews, and burned there, in front of his castle, Mar., 1546. Knox first clearly appears upon the scene of the reformation as the companion of Wishart. While the latter prosecuted his career as a preaeher in Lothian, Knox waited upon him, bearing before him, he tells us, a "twa-handed sword." He already coveted the post of danger, and, full of enthusiasm, was ready to defend his zealous friend at the peril of his own life. After Wishart's seizure and death he withdrew for awhile again into retirement. He would fain have clung to the martyr, and shared his fate, but the latter would not have it so. "Nay," he said; "return to your bairnes, and God bless you: ane is sufficient for a saerifiee." Knox's "bairnes" were his pupils, the sons of the lairds of Longniddry and Ormiston. He continued in charge of them for some years, till the great event which ere long followed the martyrdom of Wishart opened up a more prominent career for him. On the morning of May 29, 1546, cardinal Beaton was murdered in his castle, from the windows of which he had contemplated the sufferings of the martyr. Taken possession of by the band of nobles and others who had suecessfully aceomplished so audacious a design, the castle at St. Andrews became the temporary stronghold of the reforming interest. Knox took refuge in it with his two pupils. Here his great gifts as a preacher were first discovered; and having found the secret of his influence the parish church of St. Andrews soon resounded with his indignant voice, denouncing the errors of popery. His career at this time, however, was soon cut short by the surrender of the fortress, and his imprisonment in the French galleys.

For two years he remained a prisoner, and underwent, in the course of this time, many privations. He was then liberated and allowed to depart to England, where he resided for four years, from 1549 to the beginning of 1554, a time of great and fruitful activity to him. He was appointed one of Edwards VI.'s chaplains, and lived on terms of intimate intercourse with Cranmer and others of the English reformers. He is supposed to have had considerable influence on the course of the English reformation, especially in regard to the liberal changes introduced into the serviee and prayer book of the church of England in the close of Edward's reign. He was much engaged in preaching, especially in the north, in Newcastle and Berwick; and at the latter plaee he fell in love and married.

The accession of Mary drove him and others to the continent. He was reluctant to flee, but "partly by advice and partly by tears" he was compelled to consult his safety. He settled temporarily at Dieppe, whence we hear of him writing an *Admonition to the Professors of God's Faith in England.* He then went into Switzerland, and, returning, settled for some time at Frankfort-on-the-Main, where he is notable in eonnection with what are known as the "Frankfort troubles," certain disputes as to the use of king Edward's service-book in the congregation of English Protestants there. Towards the end of 1555 he made a rapid visit to Scotland, where he did mueh to encourage the eause of the reformation. Convinced, however, that the "time of deliverance" was not yet come for his country, he retired once more to Geneva, where he settled as pastor of a congregation for nearly three years, which were among the quietest, and probably the happiest years of his life.

Recalled to Scotland in May, 1559, he then entered upon his triumphant course as a reformer. Political necessities had driven the queen-regent to temporize with the "lords of the congregation," or the reforming nobles. Having somewhat re-established

her power she wished to withdraw her concessions; but the reforming impulse had gathered a strength that could no longer be resisted. The heads of the party assembling at Dundee, under Erskine of Dun, proceeded to Perth. There the pent-up enthusiasm which had been long collecting was roused into furious action by a sermon of Knox on the idolatry of the mass and of image-worship. A riot ensued. The "rascal multitude," as Knox himself called them, broke all bounds and destroyed the churches and monasteries. Similar disturbances followed at Stirling, Lindores, St. Andrews, and elsewhere. The flame of religious revolution was kindled throughout the country, aggravating the civil war already raging. At length the assistance of Elizabeth and the death of the queen-regent brought matters to a crisis; a truce was proclaimed, and a free parliament summoned to settle differences. The result of the parliament, which met in Aug., 1560, was the overthrow of the old religion, and the establishment of the reformed kirk in Scotland. In all this Knox was not only an active agent, but *the* agent above all others. The original *Confession of Faith* of the reformed kirk and the *First Book of Discipline* bear the impress of his mind. He was far from attaining all his wishes, especially as to the provision for the support of the church and of education throughout the country; he soon found that many of the nobles were far more zealous for destruction than for reformation; still he accomplished a great and radical work, which was only destined to be consolidated after many years.

The arrival of the youthful queen Mary, in the course of 1561, brought many forebodings to the reformer; he apprehended great dangers to the reformed cause from her character and her well-known devotion to the Romish church. The reformer's apprehensions scarcely permitted him to be a fair, certainly not a tolerant, judge of Mary's conduct. Misunderstandings very soon sprung up between them, and he relates, with a somewhat harsh bitterness, his several interviews with her. At length he came to an open rupture with the queen's party, including Murray and Maitland, and many of his former friends. He took up an attitude of unyielding opposition to the court, and in his sermons and prayers indulged freely in the expression of his feelings. The result was his temporary alienation from the more moderate Protestant party, who tried to govern the country in the queen's name. For a while, from 1563 to 1565, he retired into comparative privacy.

The rapid series of events which followed Mary's marriage with Darnley—the revolt of the dissatisfied nobles, with Murray at their head, the murder of Rizzio, and then the murder of Darnley (1567), the queen's marriage with Bothwell, her defeat and imprisonment, served once more to bring Knox into the field. He was reconciled with Murray, and strongly abetted him in all his schemes of policy during his regency. Further reforms were effected by the parliament which convened under his sway in the close of 1567. The sovereign was taken bound to be a Protestant, and some provision, although still an imperfect one, was made for the support of the Protestant clergy. Knox seemed at length to see his great work accomplished, and is said to have entertained the idea of retiring to Geneva. But the bright prospect on which he gazed for a little was soon overcast—Murray's assassination, and the confusion and discord which sprung out of it, plunged the reformer into profound grief. He once more became an object of suspicion and hostility to the dominant nobles, and misunderstandings even sprung up between him and some of his brethren in the general assembly. He retired to St. Andrews, for a while, to escape the danger of assassination with which he had been threatened. There, although suffering from extreme debility, he roused himself to preach once more, and in the parish church where he had begun his ministry, made his voice to be heard again with something of its old power. Assisted by his servant, the "good, godly Richard Ballenden," into the pulpit, "he behoved to lean upon it at his first entry; but ere he was done with his sermon, he was so active and vigorous that *he was lyke to ding the pulpit in blads and flie out of it.*"

In the end of 1572 he returned to Edinburgh to die; his strength was exhausted; he was "weary of the world," he said; and on Nov. 24 he quietly fell asleep.

Knox's character is distinguished by firmness and decision, and a plain, somewhat harsh sense of reality. He was a man of strong, and even stern convictions, and he felt no scruples, and recognized no dangers in carrying out his convictions. He was shrewd, penetrating, inevitable in his perceptions and purposes. No outward show or conventional pretense deceived him; he went straight to the heart of everything; and consistently with this clear and rough shrewdness of perception, his language is always plain, homely, and many will say harsh. He had learned, he himself says, "to call wickedness by its own terms—a fig, a fig; a spade, a spade." Above all, he was fearless; nothing daunted him; his spirit rose high in the midst of danger. The earl of Morton said of him truly as they laid him in the old churchyard of St. Giles: "He never feared the face of man." In Scotland Knox, no doubt, accomplished a great work. Whether the work would not have been better if it had been less violently done, if the spirit of love and moderation, as well as the spirit of power, had presided over it, is a question regarding which there may be much division. But even if we should take exception to some things he did or encouraged, we may admire the consistent boldness, the deep earnestness, and the self-denying, unflinching zeal of the great reformer.—See M'Crie's *Life of Knox.*

KNOX, John Jay. See page 892.

KNOX, Vicesimus, D.D., 1752–1821; b. Middlesex; graduated at Oxford; master of Tunbridge school, Kent, for 33 years, and for a long time rector of several parishes. He

was admired as a preacher. His chief works were: *Essays, Moral and Literary; Liberal Education; Considerations on the Lord's Supper; Christian Philosophy,* which passed through numerous editions; *Sermons; Elegant Extracts in Prose and Verse.* His complete works were published in 7 volumes.

KNOX COLLEGE, at Galesburg, Knox co., Ill., was organized in 1841. In 1885 it had 12 instructors; 166 students. and a library of 6,700 volumes. It admits students of both sexes. President, Newton Bateman, LL.D.

KNOX'VILLE, a city of Tennessee, United States, on the n. bank of the Holston river, at the head of steamboat navigation, 165 m. e. of Nashville. It is the principal and central town of e. Tennessee, on the East Tennessee, Georgia and Virginia railway. It is the site of the university of East Tennessee, of the state deaf and dumb asylum, and has 20 churches, numerous schools, 6 newspapers, several flouring-mills, and manufactures of iron-ware. Pop. '80, 9,693.

KNOXVILLE (*ante*), the capital of Knox co., Tenn., and a terminus of the Knoxville and Charleston railroad, which connects here with the Knoxville and Ohio railroad. It is built upon an elevated site, and is surrounded by picturesque scenery. It has prosperous manufactures and a vigorous trade, and is exceeded in population by but two cities in the state. The Tennessee agricultural college is connected with the East Tennessee university at this place. Among the numerous public buildings is the U. S. custom-house and post-office, costing $400,000, an elegant structure of gray marble, quarried in the vicinity. Knoxville was the capital of the state from 1794 to 1817.

KNUTS'FORD, a small market t. of Cheshire, 23 m. e.n.e. of the city of Chester. Pop. abt. 3,600. The name is said to be derived from king Canute, or Knut, having with his army forded the Bollin here.

KNYPHAUSEN, Dodo Henry, Baron, 1730–89; b. Alsace; a German soldier distinguished in the wars of Frederick the great against Austria. In the American revolution he received command of Hessian and Waldeck troops, participating in the battles of Long island, White Plains, Fort Washington, Monmouth, and Brandywine. In the absence of sir Henry Clinton in 1780 he had command of the British troops in New York, and made two raids into New Jersey with 5,000 men, accomplishing, however, little more than the sacking of Connecticut Farms and the burning of Springfield.

KO'ALA (*Phascolarctos cinereus*), a marsupial quadruped, commonly referred to the family *phalangistidæ* and pretty nearly resembling the phalangers in dentition, but having the molar teeth much larger. The toes of the fore-feet are in two opposable groups, of two and three, a character not found in any other quadruped, but well adapted to grasping the branches of trees, on which the koala often hangs with its back undermost, like the sloth. There is scarcely any rudiment of a tail. The general form is not unlike that of a young bear. The female carries her young on her back, for a long time after it is capable of leaving her pouch.

KOB'BE, a t. of central Africa. See Darfur.

KOBOLDS. See Goblins and Bogles.

KO'BRIN, or Kobryn, a t. of Russian Poland, in the government of Grodno, 139 m. e. from Warsaw, on the right bank of the Machazica, a tributary of the Northern Bug. It is favorably situated for commerce, the Machazica, and along with it the Bug and Vistula, being here connected by a canal with the Pripet, and thus with the Dnieper. There is a Greek abbey here. Pop. 8,750.

KOCH, Karl Heinrich Emmanuel, a celebrated traveler and naturalist, was born at Weimar in 1809. He studied at the universities of Würzburg and Jena, and in 1836 undertook a scientific journey to southern Russia, completing his researches in a second journey, which he performed in 1843, this time visiting also Turkey, Armenia, Pontus, the Caspian sea, and the range of the Caucasus. In 1839 he was appointed professor of botany in the university of Jena. The most important of his works are: *Monographia generis Veronicæ* (Würzburg, 1833); *Reise durch Russland nach dem Kaukasischen Isthmus* (Journey through Russia as far as the Isthmus of the Caucasus, Stuttgart, 1842–43). His second journey supplied the materials for *Wanderungen im Oriente* (Wanderings in the East, Weimar, 1846–47), the third volume of which was reprinted in 1854 under the title of *The Crimea and Odessa.* Besides these he has written about nine other works on geography, botany, and topography.

KOCH, Robert, M.D. See page 892.

KOCHLA'NI, the name given to the royal breed of Arabian horses, said to have been the offspring of Solomon's stud, and to have had their genealogies preserved during more than 2,000 years.

KOCK, Charles Paul de, a French novelist, dramatist, and poet, b. at Plassy, near Paris, in 1794, was the son of a Dutch banker who perished on the scaffold during the French revolution. Originally intended for a mercantile career, he devoted himself to literature against the wishes of his relatives. His novels, though displaying no trace of real genius, acquired a very unenviable notoriety by the licentious freedom of their representations. Kock composed upwards of fifty novels, besides a great number of vaudevilles and stories in verse. His earlier works are considered superior to his later ones. Among others, we may mention *Georgette, ou la Nièce du Tabellion; Gustave, ou le*

mauvais Sujet; Le Barbier de Paris; La Femme, le Mari et l'Amant; Mœurs Parisiennes. He died in Aug., 1871.—Henri de Kock, son of the preceding, like Dumas *fils*, has unhappily followed his father's footsteps, if we may judge from the titles of some of his novels: *Le Roi des Etudiants et la Reine des Grisettes; Les Amants de ma Maîtresse; Lorettes et Gentilshommes;* etc.

KO'DIAK, an island to the s.e. of the peninsula of Alaska (q.v.), contains the oldest settlement in the territory, as distinguished at least from the Aleutian archipelago. It is little better than an irregularly shaped mass of mountains, measuring 75 m. by 50. The chief value of Kodiak consists in the tolerable harbor of St. Paul, on its n. coast.

KŒCHLIN, André, b. Paris, 1785; the most distinguished member of the large family which has so long carried on the print-trade of Mulhouse in Alsace. It was through his efforts that this branch of industry attained its highest degree of prosperity.

KOEK'KOEK, Bernard Cornelis, 1803–62; b. in the Netherlands; studied painting under his father and at Amsterdam. In 1841 he went to reside at Cleves in Rhenish Prussia. He was a landscape painter and his work holds high rank. Three of his brothers also were painters.

KOHAT', a t. of the Punjab, stands in lat. 33° 32′ n., and long. 71° 27′ e., in a small but fertile and populous mountain-valley of the same name, which forms an administrative district. A few miles to the e. of it are springs of naphtha, and rich and extensive deposits of sulphur. Kohat is traversed by two important routes—the route from Peshawur to Kala Bagh, and another by Bungush to Khorassan. Pop. '68, 11,274.

KOH-I-NÛR (Mountain of Light), the name of a large diamond now in the possession of her majesty queen Victoria. According to Hindu legend it was found in a Golconda mine, and its possessors have, with few exceptions, been the rulers of Hindustan. After belonging successively to the Bahmani, Khilji, Lodi, and Mogul kings, it came, in 1739, into the hands of Nadir Shah, who gave it its present designation. From him it went to the Abdâli monarchs of Afghanistan, the last of whom, Shah Sujah, gave it to Runjeet Singh, the ruler of the Punjab. On the abdication of the maharajah Dhuleep Singh, and the annexation of the Punjab in 1849, it was surrendered to the sovereign of Great Britain. It is said to have weighed originally 900 carats, but, after being cut, was reduced to 279 carats. It was reduced by recutting to 186 carats, and in this state was shown at the great exhibition of 1851; since which time it was again recut in 1852, and now weighs about 106 carats, and has been valued at £120,664. The Koh-i-nûr is rose-cut. See Streeter's *Precious Stones and Gems.*

KOHL, Johann Georg, an eminent German traveler and author, was b. at Bremen, April 28, 1808; studied at Göttingen, Heidelberg, and Munich; and settled in Dresden, in 1838, from which place as a starting-point, he made excursions in all directions, visiting every important district of Europe, and on his return from each expedition, published his experience in a series of works. In 1854 he went to America, where he traveled for four years, and returned to Germany. His works on Europe are so numerous and well known that a full detail of them is unnecessary; suffice it to say, that he has described the countries of Austria (1842), Bavaria (1842), England (1842 and 1844), Russia (1846–47), Denmark (1846 and 1847), Istria, Dalmatia, and Montenegro (1851), etc. The results of his American experience were published in *Travels in Canada* (1855); *Travels in the United States* (1857); and *Kitahi-Gami, or Tales from Lake Superior* (1860). Other works of Kohl are *The Two Oldest Maps of America, executed in the Years* 1527–29 (1860); the *History of the Discovery of America* (1861 ; Eng. trans. 1872); *On the Way* (1866); *History of the Gulf Stream and the Investigations regarding it from the Earliest Times* (1868); and *The Geographical Position of the Capitals of Europe* (1874). He d. 1878.

KOHL-RABI, or, more properly, Kohl-Rübé (Germ. Kale-turnip, similarly called *Chou Rave* by the French), a cultivated variety of the kale or cabbage (*brassica oleracea*), distinguished by the swelling of the stem just above the ground, in a globular form, to the size of a man's fist or larger, leaf-stalks springing from the swollen part, and adding to the peculiarity of its appearance. This is the part which is used, and its uses are similar to those of the turnip. In quality it more nearly resembles the Swedish than the common turnip, and the use of it for feeding cows does not give their milk a disagreeable flavor, as when they are fed on turnips. Kohl-rabi is very hardy, its leaves, as well as its stem and root, enduring the most severe winters, although in Britain its cultivation has hitherto been chiefly in the s. of England. It is a common field-crop in Sweden. In the cultivation of kohl-rabi, it is usual to sow it on seed-beds, and to transplant by dibbling into fields; but this is perhaps not the best mode. It ought, however, to be sown earlier than even Swedish turnip; and raised drills are unsuitable for it, owing to the effect of winds. It is more solid and more nutritious than any kind of turnip of the same size. There are numerous sub-varieties. Kohl-rabi, like all the varieties of *brassica oleracea*, delights in a strong rich soil and abundant manure.

KO'KOMO, a city, the capital of Howard co., Ind., on the Wildcat river, and on the Indianapolis, Peru and Chicago railroad, where it crosses the Pittsburg, Cincinnati and St. Louis railroad; 54 m. n. of Indianapolis, and 22 m. s.s.e. of Logansport; pop. '80, 4,042. It is the n.e. terminus of the Frankfort and Kokomo railroad. It has the usual county buildings, a state normal school, a high school, 3 banks, 5 churches, a

foundry, a woolen-mill, several planing-mills, a stave factory, and 3 weekly newspapers.

KOKRA WOOD, or COCUS WOOD, the wood of an Indian tree, *lepidostachys roxburghii*, which belongs to a very small natural order, *scepaceæ*, remarkably allied at once to *euphorbiaceæ* and to *amentaceæ*. Kokra wood is imported into Britain in logs of 6 or 8 in. in diameter, having the heart-wood of a rich deep brown color and very hard. It is much used in the manufacture of flutes and other musical instruments. The kokra tree has leathery, alternate leaves.

KO'LA, a place of only (1867) 1062 inhabitants, but worthy of notice as the most northern t. of European Russia, and except Wardöe, in Norway, the most northern in Europe. It is situated between the Kola and its tributary, the Tuloma, not far from the Icy sea, and has a secure and capacious harbor. The inhabitants are Russians, Lapps, and Finns, and are chiefly occupied with walrus, whale, and cod fishery.

KOLA NUT. See COLA NUT.

KOLAPUR' is the principal t. of the tributary state of the same name within the presidency of Bombay, 130 m. to the s. of Poona. The pop. in '72 was 39,621. The raj, or state, has an area of 2,778 sq.m., and contains 802,691 inhabitants, composed of Mahrattas and Ramusis. Since 1844, when the East India company virtually took possession, Kolapur has considerably advanced in prosperity.

KOLB, GEORG FRIEDRICH, b. Sept. 14, 1808, at Spires, in Rhenish Bavaria, where, at 22 years of age, he established a liberal journal, which he conducted for more than 20 years, encountering many obstacles from the government. It was by his influence as a member of the Bavarian diet that king Louis I., in 1849, was compelled to reimburse the state treasury for the money which had been lent to his son, king Otho, of Greece. Soon after this the reactionary party came into power, and Kolb took up his residence in Zurich to escape from the persecutions of the Bavarian government. He returned in 1860 and again became the editor of a liberal journal. He is eminent, not only as a politician and journalist, but also as a statistician.

KOLBE, ADOLF WILHELM HERMANN. See page 892.

KÖLCSEY, FERENCZ, 1790–1838; b. Transylvania. He studied law, but his tastes drew him away to the literary profession. Identifying himself with the movement led by Kazinczy, he exercised a wide influence as a critic, and wrote tales and poems which gained him no little popularity. He was a member of the Hungarian diet from 1832 to 1836, and took rank as one of the most brilliant orators of the country. Just as a great political career seemed to be opening before him, he suddenly died at Pesth. His collected writings were published after his death; his *Diary* in 1848.

KOLIAZIN', or KALASIN, a t. in the government of Tver, European Russia, situated on the right of the Volga, carries on an extensive trade in corn, tallow, and linen. Pop. '80, 7,167.

KOLIN, or KOLLIN, a t. of Bohemia, in the circle of Kaurzim, on the Elbe, at a railway junction, 35 m. e. of Prague; pop. 9,473. It has manufactures of cotton, liquor, etc. It was here that marshal Daun defeated Frederick the great in 1757.

KOLLÁR, JOHN, one of the most conspicuous Slavic poets and scholars, was b. in 1793, at Moschowze, in the n.w. of Hungary, studied at Presburg and Jena, and in 1819 became pastor of a Protestant congregation at Pesth. His first work was a volume of songs and poems entitled *Basne* (Poems, Prague, 1821); this was followed by his *Slawy Dcera* (The Daughter of Glory, Buda, 1824; 3d ed., Pesth, 1832), regarded by his countrymen as his greatest work; and *Rozprawy e Imenach* (Treatises on the Name and Antiquities of the Slavic People and their Ramifications, Buda, 1830). Kollar's fame, however, rests more on his being one of the earliest and most zealous advocates of Panslavism (q.v.). The work in which this tendency first appears was written in German, and is entitled *Ueber die literarische Wechselseitigkeit zwischen den Stämmen und Mundarten der Slav. Nation* (Pesth, 1831). The revolution in Hungary compelled him to abandon his country. He withdrew to Vienna, where he was made professor of archæology in 1849. He died Jan. 29, 1852.

KÖLLIKER, ALBRECHT, a German physiologist, was b. 1817, and is at present professor of anatomy and physiology in the university of Würzburg. He is principally distinguished by his labors in the department of microscopic anatomy, and on the development of the embryo; but his contributions to natural history generally are by no means unimportant. Among his principal works must be named his *Mikroskopische Anatomie; Handbuch der Gewebelehre des Menschen* (which has been translated for the Sydenham society by Busk and Huxley, under the title of *A Manual of Human Histology*, in two volumes); *Die Siphonophora oder Schwimmpolypen von Messina;* and *Entwickelungsgeschichte des Menschen u. d. höheren Thiere.* In association with Von Siebold, he is also the editor of *Zeitschrift für wissenschaftliche Zoologie,* the most important scientific natural history journal of Germany.

KOLLIN', or NEU-KOLIN, a t. of Bohemia, on the Elbe, about 35 m. e. of Prague, with a pop. of (1880) 11,332, is noted for the great battle fought June 18, 1757, in its vicinity, between 60,000 Austrians under marshal Daun, and 32,000 Prussians under

Frederick II. The latter were defeated in spite of the obstinate valor of their monarch, who charged at the head of his cavalry seven times in succession.

KOLOME'A, a t. of Austrian Galicia, is situated on the Pruth, at the base of the Carpathian mountains, 112 m. s.s.e. of Lemberg. It is a very old town, and formerly carried on an extensive trade. Pottery is still largely manufactured. Pop. '80, 22,867. half of whom are Jews.

KOLOM'NA, a district t. of Great Russia, in the government of Moscow, is situated 62 m. s.e. of the city of that name, on the river Moskva. It contains (1880) 22,867 inhabitants. There are communications by water between it and Nijni-Novgorod; and a railway passes the town in the direct line through Riazan, from Moscow to the sea of Azov, which has very greatly increased the trade of the district. Weaving, silk-spinning, and cotton-printing are carried on, with manufactures of cotton and leather.

KOLOSHES. See KADIAKS.

KOLYMA', a river in eastern Siberia, flowing from the Stanovoy mountains, among which it takes its rise in lat. 61° 5′ north. After a n.e. course of 1000 m., it falls into the Arctic ocean in lat. 69° 40′ north.

KOLYVAN', a t. in the government of Tomsk, in Siberia, situated on the river Ob, lat. 55° 21′ n., and long. 82° 46′ e., is remarkable for the extensive quarries of jasper in its neighborhood. There is also a large manufactory of jasper ornaments, which belongs to the Russian government. Pop. '80, 3,637.

KOLZOW, ALEXEI VASSILIEVICH, a Russian poet, prematurely cut off in the early bloom of his genius, most of whose songs are among the choicest pearls of Russian poetry, was the son of a cattle dealer, and was b. in Voronesh in 1809. After a merely rudimentary education, he was employed by his father in feeding cattle on the steppes in summer, and in winter in attending the markets. His familiarity with the scenes of the steppes appears in all his poetry. His love of poetry was early developed, and the talent displayed in some of his earlier effusions, obtained for him the patronage of some of the most zealous cultivators of Russian literature. He was just about to settle in St. Petersburg, and to devote himself exclusively to literary pursuits, when he suddenly died in 1842. A complete edition of his poems, with a biography of the author, was published by Belinsky in 1846.

KOMORN, a co. in Hungary. See COMORN.

KOMORN, or COMORN, a Hungarian city, whose fortifications are esteemed the strongest in the world. The city proper is situated on an island at the point of union of the Waag and Danube rivers, 85 m. from Vienna; pop. '70, 12,256. It has a number of important public buildings, including seven churches, of which four are RomanCatholic, and a synagogue. The manufacture of cannon and small arms is conducted on an extensive scale. The fortress of Komorn dates back to the 15th c., when it was built by the orders of Matthias I. (Corvinus), king of Hungary. The original fortress, however, was afterwards greatly strengthened by the construction of works on both sides of the Danube, têtes-de-pont, and other defenses, rendering it nearly impregnable. Komorn was besieged and captured many times and retaken as many, during the wars between the Ottoman Turks and the Hungarians. Here, too, in 1848–49, occurred the final conflict of the Hungarian war against Austrian domination. Here, after Russian intervention had turned the scale in favor of the house of Hapsburg, Klapka and his gallant comrades resisted during several weeks the Austrian army under Haynau, and only finally capitulated and retired from Komorn when granted all the "honors of war."

KONIA'GAS. See KADIAKS.

KONG, a name applied to a mountain range, a district, and a town, all of which are situated northward from the coast district, in the w. of northern Africa.—The mountains extend from w. to e. at the distance of about 200 m. from the shore of the gulf of Guinea, and are said to be an offset from the high table-land of Senegambia. Little is known regarding them. The highest known summits reach an elevation of only 2,500 feet.—Regarding the Kong district, all we know is, that it is remarkable for the industry of its inhabitants, and for the gold trade which is there carried on.—The town of Kong, in lat. 8° 53′ n., and long. 3° 30′ w., is situated among hills 540 m. s. of Timbuctoo. It is a large town, consisting entirely of clay-houses, and is the center of numerous converging caravan routes. The inhabitants, who are chiefly Mandingoes, and of the Mohammedan religion, manufacture cotton cloths extensively.

KONGSBERG, a t. of Norway, 45 m. by rail s.s.w. of Christiana, on the river Lauwen; pop. 4,800. A silver mine, discovered here in 1623, is the most important in the kingdom The town has a school of mines, a royal manufactory of arms and powder, smelting-works for silver and cobalt, and manufactures of iron, cotton goods, toys, etc.

KO'NIEH, a large t. of Asiatic Turkey, capital of a vilayet of its own name, situated in a rich, well-watered plain. in lat. 37° 54′ n., and long. 32° 40′ east. It is surrounded by walls from 2 to 3 m. in circuit, built from the ruins of ancient Seljuk edifices, and surmounted by square towers. Its numerous minarets, and its mosques and other public buildings, give it an imposing appearance, but like most of the towns of Asia Minor, it is now in a sadly ruinous condition. Many interesting remains of Saracenic architecture, however, are still to be met with. Konieh is the chief emporium for the products of

the interior. Carpets and colored morocco leather are manufactured, and cotton, wool, and skins are exported to Smyrna. Pop., including the suburbs, 50,000.

Konieh, the ancient *Iconium*, was famous in ancient times as the capital of Lycaonia. From 1087 to 1299 it was the seat of a Seljuk sultanate. On Dec. 20, 1832, a battle was fought here, in which Ibrahim Pasha completely defeated the Turkish army.

KÖNIG, FRIEDRICH, the inventor of the steam-press, was the son of a respectable citizen of Eisleben, and was b. there April 17, 1775. He became a printer, and was also for a short time a bookseller, but was unsuccessful in this business. He eagerly prosecuted literary and scientific studies. Having devoted himself to the invention of means of printing by machinery, he applied in vain for the necessary pecuniary assistance in various quarters, his schemes being rejected as impracticable; but at last Thomas Bensley, a printer in London, came forward to his support, a company was formed, and a patent was obtained on Mar. 29, 1810, for a press which printed like the hand-press by two flat plates, and in 1811 it was first used to print part of the *Annual Register*. A second patent was obtained on Oct. 30, 1811, for a cylinder-press, a third in 1813 for improvements upon it. This improved machine was soon adopted by the proprietors of the *Times*. In the latter part of his life, König was a partner in a company for making steam printing-presses at Oberzell, near Würzburg, in Bavaria. He died Jan. 17, 1833.

KÖNIGGRÄTZ, a t. and fortress of Bohemia, on the left bank of the Elbe, at the confluence of the Adler with that river, 64 m. e.n.e. of Prague. It is the seat of a bishop, and has a beautiful cathedral. The immediate neighborhood can in any emergency be covered with water. Cloth, musical instruments, shoes, and wax-candles are the staple articles of manufacture. This town has become famous in history on account of the signal victory gained by the Prussians over the Austrians in 1866. Pop. '80, 8,166.

KÖNIGINHOF, a small manufacturing t. of Bohemia, on the left bank of the Elbe, 16 m. n. of Königgrätz. Linen weaving, tanning, and manufactures of hats and sugar, are the principal branches of industry. Pop. '80, 6,813.

KÖNIGSBERG, a small t. of Prussia, in the province of Brandenburg, on the Rörike, 45 m. n. of Frankfort-on-the-Oder. Tanning and distilling are the chief branches of industry. Pop. '75, 6,353. Numerous other places in Germany bear this name.

KÖNIGSBERG, an important t. and fortress of Prussia, in the province of Prussia, is situated on both banks of the Pregel, and on an island in that river, 4 m. from its entrance into the Frisches Haff. It consists of the old town and the Löbenicht on the n. bank (the latter of which, in its 7-storied and gabled houses, and steep side-lanes, still presents a completely Hanseatic appearance), the Kneiphof on the island (also one of the oldest parts), and numerous suburbs. The Pregel is here crossed by seven bridges. The origin of the town dates from the erection of a castle by Ottokar, king of Bohemia, in 1257. Königsberg became a member of the Hanseatic league in 1365, and was the residence of the grand-master of the Teutonic order from 1457 to 1528. In 1701 Frederick, elector of Brandenburg, was crowned here, with the title of Frederick I., king of Prussia. Its chief buildings are the cathedral, containing the tomb of Kant; the university, founded in 1544 and attended now by about 600 students; the united royal and university library, with 220,000 volumes; and the observatory. There are also three gymnasia, with numerous other educational and benevolent institutions. Important manufactures of woolens, silk, leather, and tobacco are carried on. The value of the imports in 1875 was £13,000,000; and of the exports, £11,000,000. Wine, fruits, coal, salt, and sugar are imported; grain is the chief article of export. Pop. '80, 140,909.

KÖNIGSHÜTTE, a t. of Prussia, in Silesia, 54 m. e.s.e. of Oppeln; pop. 26,030. It is celebrated for its mineral baths, and has large iron and zinc works and coal mines.

KÖNIGSMARK, MARIA AURORA, Countess, 1666–1728; b. Sweden; daughter of a Swedish general, and granddaughter of a field-marshal in the Swedish service of the name of Wrangel. She was mother of Maurice of Saxony (marshal Saxe), and an ancestress of Mme. Dudevant (George Sand). She was celebrated for her charms both of person and mind. Previous to 1694 much of her time was passed at the courts of Stockholm, Hanover, and Brunswick, receiving a thorough education for that period, and becoming an accomplished linguist. She was the author of a number of unpublished poetical and dramatic pieces, among them verses upon Charles XII. of Sweden. In 1694, as countess of Königsmark, she went, in consequence of some financial difficulty with her bankers at Hamburg, to the court of Augustus I., elector of Saxony, surnamed the strong, hoping for his intervention in her favor. She found the licentious monarch living in greater luxury and magnificence than any sovereign of Europe, excepting Louis XIV. Won by her beauty and accomplishments, Augustus first made her his mistress, and, in 1702, ambassadress to her royal countryman, Charles XII. of Sweden, with whom she failed to make terms, not succeeding in gaining an audience. Her historian, Voltaire, however, who esteemed her "the most famous woman of two centuries," has recorded that "she returned with the satisfaction of believing that she was the only person feared by the king of Sweden." Her life was ended at Quedlinburg, a town of Prussia, at the foot of the Hartz mountains, in the province of Saxony, on the river Bode. She was buried in the church which contains the graves of emperor Henry I. and his wife Matilda and the abbesses of the convent of St. Wipertus.

KÖNIGSMARK, Philip Christopher, Count; b. about 1650, assassinated in 1694; a Swedish adventurer. He entered the Swedish army, in which he attained the rank of colonel. His cousin, Sophia Dorothea, a beautiful princess, daughter of the duke of Calle, was married to the prince-elector of Hanover (afterwards George I. of England). He went to the court of Hanover in 1692, and, finding his cousin alienated from her husband on account of his gloomy and jealous character, he entered into an arrangement with her to flee with him to France, but, the intrigue being suspected, he was assassinated by order of the elector. The correspondence of the cousins, published in 1847, shows that a guilty love existed between them.

KÖNIGSTEIN, a small t. of Saxony, on the Elbe, 17 m. s.e. of Dresden; pop. 3,261; noted for its impregnable fortress on a rock 779 ft. above the river. Its strength is due to its lofty and insulated position on the solid and precipitous rock. The Saxon monarchs have used it in times of danger for themselves and their treasures. The high gateway is approached by a slanting passage cut through the rock, and by a wooden drawbridge. This passage is strongly defended. Two years' provisions for 1200 men are stored in time of war in vast bomb-proof casemates hollowed out of the rock. There is a well 1172 ft. deep bored in the rock, and the land surrounding the fortress supplies vegetables for the garrison and pasturage for one or two cows. This is one of the few fortresses in Europe that has never been taken. The last time it became a royal asylum was in 1849, when the king lived here three months. Packing-boxes are kept ready for conveying thither the valuable treasures of Dresden in case of danger. The garrison consists entirely of Saxon soldiers, but the commander is appointed by the emperor.

KÖNIGSWART, a t. of Bohemia, on a feeder of the Berann, a branch of the Elbe, 79 m. w.s.w. from Prague. It is situated in a romantic valley, has a fine castle, belonging to prince Metternich, mineral springs, and a bathing establishment. The old fortress was destroyed by the Swedes in the thirty years' war, and the site having been purchased by the imperial general, count Metternich, in 1618, he built a castle in the Italian style, surrounded it with a fine park, and collected in it a fine library, with great treasures of paintings, antiquities, and objects of natural history. The altar of the richly adorned chapel of the castle possesses many bones and other relics of saints to which pilgrimages are made. Pop. '69, 1700.

KONRAD I., or Conrad I., King of the Germans (a title identical with the subsequent one of "emperor of Germany"), was the son of Konrad of Fritzlar, count of Franconia, and the nephew of the emperor Arnulf. On the extinction of the direct line of the Carlovingians the Germans resolved to make the sovereign dignity elective, and preferring to choose one who was related to the late imperial family, offered the crown to Otho the illustrious, duke of Saxony, who refused it, but recommended Konrad, who was accordingly elected in 911. The new monarch gradually re-established the imperial authority over most of the German princes, carried on an unsuccessful war with France, and at last fell mortally wounded at Quedlinburg (918) in a battle with the Hungarians, who had repeatedly invaded his dominions. He lies buried at Fulda. On his death-bed he enjoined his brother Eberhard to carry the imperial insignia to his mortal enemy, duke Henry of Saxony, son of Otho the illustrious, with whom he had been continually at war since 912 A.D., and accompanied the gift with the chivalrous message that he wished to render to the son what he had received from the father. Konrad's reign was a remarkable epoch in the history of Germany; sovereignty by hereditary right was introduced into the German duchies and markgrafdoms; the minor lords of the soil became vassals, not to the king, as formerly, but to their dukes; and finally the crown-lands in each duchy were taken possession of by the dukes themselves, who thus totally destroyed the sovereign's local jurisdiction.

KONRAD II., King of the Germans and Roman emperor, was elected after the extinction of the Saxon imperial family in 1024. He was the son of Henry duke of Franconia, and is by many considered as the founder of the Franconian dynasty. Immediately after his election he commenced a tour through Germany to administer justice and acquaint himself with, and, if necessary, to ameliorate the condition of his subjects. With a view to this last he instituted the *God's Truce* (q.v.). In 1026 he crossed the Alps, chastised the rebellious Italians, was crowned at Milan as king of Italy, and he and his wife, Gisela, were anointed emperor and empress of the Romans by the pope. He was soon recalled to Germany to put down four formidable revolts, in which he succeeded so well that by 1033 peace was restored. In 1032 he had succeeded to the kingdom of Burgundy, which he annexed to the empire. In 1036 a rebellion in Italy again compelled him to cross the Alps; but his efforts to restore his authority were this time unsuccessful, and he was forced to grant various privileges to his Italian subjects. Shortly after his return he died at Utrecht, June 4, 1039. Konrad was one of the most remarkable of the earlier monarchs of Germany. He repressed the more obnoxious features of the feudal system, and by conferring the great duchies of Bavaria, Swabia, and Carinthia on his son, reduced the dangerous power of the great dukes of the empire.

KONRAD III., King of the Germans, the founder of the Hohenstaufen (q.v.) dynasty, was the son of Frederick of Swabia, and was b. in 1093. While under 20 years of age Konrad, with his elder brother Frederick, had bravely supported Henry V. against his

numerous enemies, and in return that monarch granted Konrad the investiture of the duchy of Franconia. He subsequently contested the crown of Italy with the emperor Lothaire of Saxony, but was compelled to resign his pretensions. On the death of Lothaire the princes of Germany, fearing the increasing preponderance of the Guelph party, and attracted by his brilliant courage, moderation, and goodness, offered Konrad the crown, and he was accordingly formally elected at Aix-la-Chapelle, Feb. 21, 1138. He was immediately involved in a quarrel with Henry the proud, duke of Bavaria and Saxony, and head of the Guelph party in Germany; and the struggle was continued under Henry's son and successor, Henry the lion (q.v.). While Germany was thus convulsed the state of Italy was not a whit more peaceable. The several belligerents besought Konrad's assistance, but he well knew the natural inconstancy of the Italians, and determined to stand aloof. Soon after this, St. Bernard of Clairvaux commenced to preach a new crusade, and Konrad, seized with the general infatuation, set out for Palestine at the head of a large army (see CRUSADES) in company with his old enemy, Guelf of Bavaria. Guelph returned to Germany before Konrad, and with his nephew, Henry the lion, immediately renewed the attempt to gain possession of Bavaria, but their army being defeated at Flochberg, they were compelled to sue for peace. Konrad was now called upon to aid the duke of Poland against his rebellious subjects, and the pope and the northern Italians against Roger of Sicily; but while preparing for this latter expedition he was poisoned, Feb. 15, 1152, at Bamberg. Konrad was largely endowed with the virtues necessary for a great monarch, and, though himself unlearned, was a warm patron of science and letters. His marriage with a Greek princess was symbolized by the two-headed eagle which figured on the arms of the emperor of Germany, and now appears on the arms of the sovereign of Austria, as heir to the German emperors.

KONRAD IV., 1228–54; b. in Apulia; son of Frederick II., emperor of Germany; crowned king of the Romans in 1237, and upon the death of his father, in 1250, assumed the title of emperor. He contended against the intrigues and usurpations of the pope, and repulsed the Mongol invaders. He had a competitor in William of Holland, by whom he was defeated. He kept himself on the throne until, embarrassed by the increasing anarchy of Germany, he retired to Italy in 1251 and conquered Naples. He was foiled in his plans, however, by the pope, and died of a lingering disease, supposed to have been induced by poison.

KONRADIN OF SWABIA, the last descendant of the imperial house of Hohenstaufen (q.v.), was the son of Konrad IV., and was b. in 1252, two years before his father's death. Innocent IV. immediately seized upon the young prince's Italian possessions on the plea *that the son of a prince who dies excommunicated has no hereditary rights;* and the other enemies of the house of Hohenstaufen rejoiced to follow the pope's example. Konradin was not left, however, totally friendless. His uncle Manfred took up arms in his behalf, drove the pope from Naples and Sicily, and in order to consolidate his nephew's authority declared himself king till the young prince came of age. The pope's inveterate hatred of the Hohenstaufens induced him to offer the crown of the two Sicilies to Charles of Anjou, a consummate warrior and able politician. Charles immediately invaded Italy, met his antagonist in the plain of Grandella, where the defeat and death of Manfred, in 1266, gave him undisturbed possession of the kingdom. But the Neapolitans, detesting their new master, sent deputies to Bavaria to invite Konradin, then in his 16th year, to come and assert his hereditary rights. Konradin accordingly made his appearance in Italy at the head of 10,000 men, and being joined by the Neapolitans in large numbers gained several victories over the French, but was finally defeated, and along with his relative, Frederick of Austria, taken prisoner near Tagliacozzo, Aug. 22, 1268. The two unfortunate princes were, with the consent of the pope, executed in the market-place of Naples on Oct. 20. A few minutes before his execution, Konradin, on the scaffold, took off his glove, and threw it into the midst of the crowd as a gauge of vengeance, requesting that it might be carried to his heir, Peter of Aragon. This duty was undertaken by the chevalier de Waldburg, who, after many hair-breadth escapes, succeeded in fulfilling his prince's last command. See SICILIAN VESPERS.

KONRAD VON WÜRZBURG, one of the most celebrated poets of the middle ages, d. at Basel in 1287. Konrad is fertile in imagination, learned, and—although marking the decline of mediæval high-German poetry by his prolix and artificial style—probably the most perfect master of German versification that had appeared up to his own day. His last poem, which he left in an unfinished condition, has for its subject *The Trojan War*, and is printed (in part) in Müller's *Sammlung altdeutscher Gedichte*. But Konrad appears to most advantage in his smaller narrative poems, of which the best is *Engelhard* (reprinted by Haupt at Leipsic in 1844 from an old and scarce impression). Next to this may be ranked his *Otto mit dem Bart* (reprinted by Hahn at Quedlinb. and Leip. 1838); *Der Welt Lohn* (by Roth, Fkr. 1843); *The Legends of Sylvester* (by W. Grimm, Gött. 1841) and of *Alexius* (by Massmann, Quedlinb. and Leip. 1843); *Die Goldene Schmiede* (by W. Grimm, Berl. 1840). His songs and proverbs are to be found in Hagen's *Minnesinger*.

KONX OMPAX, words employed in the dismissal ceremonies of the Eleusinian mysteries, which were held by the Athenians at Eleusis every fourth year in honor of

Ceres. Their signification appears to have been "amen," or "the ceremonies are concluded."

KOO'DOO, *Antilope strepsiceros*, or *strepsiceros koodoo*, one of the largest species of antelope. The general form is not so light and elegant as that of many of the antelopes. The height is about 4 ft., and the length fully 8 ft., exclusive of the tail, which is moderately long, and terminates in a tuft like that of an ox. The male is furnished with great horns, nearly 4 ft. long and beautifully twisted in a wide spiral of two turns and a half, very thick at the base, and there wrinkled and ringed. The female is smaller than the male, and hornless. The general color is grayish-brown, with a narrow white stripe along the middle of the back, and eight or ten similar stripes proceeding from it down the sides. The koodoo lives in small families of four or five, inhabiting chiefly the wooded parts of south Africa. It is easily domesticated, and is one of the animals which, probably, man has not yet done enough to reduce to his service.

KOOFA, or KUFA. See KUFIC WRITING, *ante*.

KOOM, or KUM, a t. of Persia, in the province of Irak-Ajemi, 60 m. s.w. of Teheran; pop. 8,000. It was built by the Saracens at the beginning of the 9th c.; became one of the finest cities of Persia, and was long noted for the manufacture of silks. The Afghans took and nearly destroyed it on their invasion of Persia in 1722. Though partly rebuilt, it is still mostly in ruins. Cutlery, cloth, glass, china, and soap are made here, and there are well-supplied bazaars. It has a beautiful mosque to the memory of Fatima, the daughter of imâm Resa, containing the tombs of Sofi I. and shah Abbas II.

KOOMASSIE. See COOMASSIE, *ante*.

KOOM'RAH, *Equus hippagrus*, an alleged distinct species of the family *equidæ*, a native of north Africa, and inhabiting mountain woods. It is 10 or 10½ hands high, with a broad deep head; no forelock, but long woolly hair down to the eyes; long black mane; tail more like that of a horse than of an ass; the color a uniform reddish bay, without mark or streak. Col. Hamilton Smith supposes that it may be the *boryes* of Herodotus, and *hippagrus* of Oppian.

KOOR, or KUR. See KURA, *ante*.

KOORDISTAN'. See KURDISTAN, *ante*.

KOO'RIA MOO'RIA ISLANDS, a group of six islands, on the s. coast of Arabia, are situated about 21 m. from the coast, about lat. 17° 33′ n., and long. 56° 6′ east. The surface of these islands is sterile, and the only one which is inhabited supports only from 20 to 30 fishermen. They were ceded to England in 1854. A little guano of an inferior quality has been obtained from them.

KOORILE ISLANDS. See KURILE ISLANDS, *ante*.

KOORSK. See KURSK, *ante*.

KOOSSO, or Kosso. See CUSSO, *ante*.

KOO'TENAIS, KITUNAHA, or FLATBOWS, a tribe of Indians in the n.w. part of the United States, long allied to the Flatheads, but forming a distinct family. They are amiable and inoffensive, but cowardly, and indisposed to abandon a nomadic life. They are poor, subsisting on fish, roots, grain, berries, etc. Formerly they roamed about the head waters of the Clark and McGilvray rivers, where they hunted elk, deer, Rocky mountain sheep, birds, and fish, but seldom molested buffalo. Though they welcomed father De Smet, and built a chapel for him, the tribe as such has not made any marked advance toward civilization. In 1872, 320 of the tribe were in Montana, 400 in Idaho, 400 in British Columbia, and a few in Washington territory. Those in Idaho live upon a reservation set apart for them, to which they were removed in conformity with an executive order of June 14, 1867.

KOO'TENAI, a co. in n. Idaho, bounded n. by British Columbia, e. by Montana, s. by Cœur d'Alène river, and w. by Washington territory. It contains several large lakes, and is drained by Clark's river. Its surface is partly mountainous and partly prairie. It has deposits of gold. Pop. '80, 518.

KO'PEK, a Russian money of account, the one-hundredth part of a rouble (q.v.) and equivalent to 1½ farthings of sterling money.

KOPP, JOSEPH EUTYCH, 1793–1866; b. in the canton of Lucerne, Switzerland; taught Greek at the lyceum of Lucerne, 1819–41, and was president of the board of education, 1841–45, retiring on account of the opposition excited by his hostility to the Jesuits. He devoted much labor to the study of the history of the Swiss federation, and was the first to demonstrate, in his *Urkunde zur Beleuchtung der Geschichte der eidgenösscher Bünde*, the legendary character of the story of William Tell. His *History of the Swiss Federation* (*Geschichte der eidgenösscher Bünde*) is a valuable work, showing much research of early documentary sources.

KOPPARBERG, a district of Sweden, situated on both sides of the Dal river, and embracing the territory formerly celebrated under the name of Delarne; pop. 180,000. It is a mountainous region, covered with forests of birch and fir, rich in copper and porphyry, but not well adapted for agriculture. The inhabitants are Scandinavians of the finest type, hardy, brave, and honest, and exceedingly fond of their native vales.

The country is too poor to yield them a support, and multitudes are compelled to go elsewhere for work, but they invariably return sooner or later with the fruits of their industry, to live and die in the places where they were born. Capital, Falun.

KÖPPEN, PETER VON, 1793–1864; b. at Kharkow, Russia; educated at the university of his native city, and devoted his life to investigations concerning the ethnology, archæology, and history of Russia. His writings on these subjects are of great value. The Russian government presented him with an estate in the Crimea.

KORÄES, DIAMANTES. See CORAY, ADAMANTIUS.

KO'RÂN (Arab., from *karaa*, to read), [= Hebr. *Mikra*, the written book, or that which can and ought to be read: the Old Testament, in contradistinction to *Mishnah*, or the code of the oral law], *The Reading*, by way of eminence; a term first applied to every single portion of Mohammed's "Revelations;" at a later period used for a greater number of these; and finally for their whole body, gathered together into the one book, which forms the religious, social, civil, commercial, military, and legal code of Islam. The Koran is also known under the name of *Forkan* (Chald. salvation, not from Hebr. *Perek*, division, as erroneously supposed); further, of Al-Moshaf (*the* volume), or Al-Kitab (*the* book, in the sense of "Bible"), or Al-Dhikr ("the reminder," or "the admonition"). The Korân is, according to the Moslem creed, coeval with God, uncreated, eternal. Its first transcript was written from the beginning in rays of light upon a gigantic tablet resting by the throne of the Almighty; and upon this tablet are also found the divine decrees relating to things past and future. A copy of it, in a book bound in white silk, jewels, and gold, was brought down to the lowest heaven by the angel Gabriel, in the blissful and mysterious night of Al-Khadr, in the month of Ramadân. Portions of it were, during a space of 23 years, communicated to Mohammed, both at Meeca and Medina, either by Gabriel in human shape, "with the sound of bells," or through inspirations from the Holy Ghost, "in the prophet's breast," or by God himself, "veiled and unveiled, in waking or in the dreams of night." Traditions vary with respect to the length of the individual portions revealed at a time, between single letters, verses, and entire chapters or surahs (from Hebr. *shurah*, line). The first revelation forms, in the present arrangement of the book, verses 1 to 5 of surah xcvi., and begins with the words: "Read [preach], in the name of thy Lord, who has created all things!"

Mohammed dictated his inspirations to a scribe, not, indeed, in broken verses, but in finished chapters, and from this copy the followers of the prophet procured other copies —unless they preferred learning the oracles by heart from the master's own mouth. The original fragments were, without any attempt at a chronological or other arrangement, promiscuously thrown into a box and a certain number were entirely lost. A year after the death of Mohammed, the scattered portions were, at the instance of Abu Bekr, collected by Zaid Ibn Thâbit of Medina, "from date-leaves and tablets of white stone, bones, and parchment-leaves, and the breasts of men," and faithfully copied, without the slightest attempt at molding them into shape or sequence, together with all the variants, the repetitions, and the gaps. This volume was intrusted to the keeping of Hafsa, one of the prophet's wives, the daughter of Omar. A second redaction was instituted in the thirtieth year of the Hedjrah, by caliph Othman, not for the sake of arranging and correeting the text, but in order to restore its unity: many different readings being current among the believers. He ordered new copies to be made from the original fragments, in which all the variants were to be expunged, without, however, any further alteration, such as the suppression of certain passages, etc., being introduced; and the old copies were all consigned to the flames. With respeet to the succession of the single chapters, 114 in number, no attempt was made at establishing continuity, but they were placed side by side according to their respective lengths; so that, immediately after the introductory fattah or exordium, follows the longest chapter, and the others are ranged after it in decreasing size. They are not numbered in the manuscripts, but bear distinctive, often strange-sounding headings, as: the cow, congealed blood, the fig, the star, the towers, saba, the poets, etc., taken from a particular matter or person treated of in the respective chapters. Every chapter or surah begins with the introductory formula: "In the name of God, the Merciful, the Compassionate." It is further stated at the beginning whether the surah was revealed at Mecca or at Medina. Every chapter is subdivided into smaller portions (*Ayath*, Hebr. *Oth*, sign, letter), varying in the ancient "seven editions" or primitive copies [of Medina (two), Mecca, Kufa, Basra, Syria, and the "vulgar edition"]—reduced by Nöldeke to four editions—between 6,000 and 6,036. The number of words in the whole book is 77,639, and an enumeration of the letters shows an amount of 323,015 of these. Other, encyclical, divisions of the book are: into 30 ajzâ and into 60 ahzâb, for the use of devotional readings in and out of the mosque. Twenty-nine surahs commence with certain letters of the alphabet, supposed to be of mystical purport.

The contents of the Koran as the basis of Mohammedanism will be considered under that head, while for questions more closely connected with authorship and chronology, we must refer to MOHAMMED. Briefly, it may be stated here, that the chief doctrine laid down in it is the unity of God, and the existence of but one true religion, with changeable ceremonies. When mankind turned from it at different times, God sent

prophets to lead them back to truth: Moses, Christ, and Mohammed being the most distinguished. Both punishments for the sinner and rewards for the pious are depicted with great diffuseness, and exemplified chiefly by stories taken from the Bible, the apocryphal writings, and the Midrash. Special laws and directions, admonitions to moral and divine virtues, more particularly to a complete and unconditional resignation to God's will (see ISLAM), legends, principally relating to the patriarchs, and, almost without exception, borrowed from the Jewish writings (known to Mohammed by oral communication only, a circumstance which accounts for their often odd confusion), form the bulk of the book, which throughout bears the most palpable traces of Jewish influence. Thus, of ideas and notions taken bodily, with their Arabicized designations, from Judaism, we may mention—Koran = mikrah (reading); forkan (salvation); the introductory formula, Bismillah (in the name of God); Torah (book of law); Gan Eden (paradise); gehinnom (hell); haber (master); darash (to search the scriptures); rabbi (teacher); Sabbath (day of rest); Shechinah (majesty of God); mishnah (repetition, or oral law), etc. The general tendency and aim of the Koran is found pretty clearly indicated in the beginning of the second chapter: "This is the book in which there is no doubt; a guidance for the pious, who believe in the *mysteries of faith*, who perform their *prayers*, give *alms* from what we have bestowed upon them, who believe in the *revelation* which we made unto thee, which was sent down to the *prophets before thee*, and who believe in *the future life*, etc. To unite the three principal religious forms which he found in his time and country—viz., Judaism, Christianity, and heathenism—into one, was Mohammed's ideal, and the Koran, properly read, discloses constantly the alternate flatteries and threats aimed at each of the three parties. No less are certain abrogations on the part of the prophet himself, of special passages in the Koran, due to the vacillating relation in which he at first stood to the different creeds, and the concessions first made, and then revoked. Witness the "Kiblah," or the place where the believer was to turn in his prayer, first being Jerusalem; fasting, being at first instituted in the ancient manner; forbearance to idolaters forming one of the original precepts, etc.

The language of the Koran is of surpassing elegance and purity, so much so that it has become the ideal of Arabic classicality, and no human pen is supposed to be capable of producing anything similar:—a circumstance adduced by Mohammed himself as a clear proof of his mission. The style varies considerably; sometimes concise and bold, sublime and majestic, impassionate, fluent, and harmonious; it at other times becomes verbose, sententious, obscure, tame, and prosy; and on this difference modern investigators have endeavored to form a chronological arrangement of the Koran, wherever other dates fail. But none of these attempts can ever be successful. Full manhood, approaching age, and declining vigor, are not things so easily traced in the writings of a man like Mohammed. The Koran is written in prose, yet the two or more links of which generally a sentence is composed, rhyme with each other, a peculiarity of speech used by the ancient soothsayers (kuhhân = cohen) of Arabia:—only that Mohammed used his own discretion in remodeling its form, and freeing it from conventional fetters; and thus the rhyme of the Koran became an entirely distinctive rhyme. Refrains are introduced in some surahs; and plays upon words are not disdained.

The outward reverence in which the Koran is held throughout Mohammedanism is exceedingly great. It is never held below the girdle, never touched without previous purification; and an injunction to that effect is generally found on the cover which overlaps the boards, according to eastern binding. It is consulted on weighty matters; sentences from it are inscribed on banners, doors, etc. Great lavishness is also displayed upon the material and the binding of the sacred volume. The copies for the wealthy are sometimes written in gold, and the covers blaze with gold and precious stones. Nothing also is more hateful in the eyes of a Moslem than to see the book in the hands of an unbeliever.

The Koran has been commented upon so often that the names of the commentators alone would fill volumes. Thus, the library of Tripoli, in Syria, is reported to have once contained no less than 20,000 different commentaries. The most renowned are those of Samachshari (died 539 H.), Beidhavi (died 685 or 716 H.), Mahalli (died 870 H.), and Soyuti (died 911 H.). The principal editions are those of Hinkelmann (Hamburg, 1694); Maracci (Padua, 1698); Flügel (3d ed. 1838), besides many editions (of small critical value) printed in St. Petersburg, Kasan, Teheran, Calcutta, Cawnpore, Serampore, and the many newly erected Indian presses. The first, but very imperfect, Latin version of the Koran was made by Robertus Retensis, an Englishman, in 1143 (ed. Basle, 1543). The principal translations are those of Maracci, into Latin (1698); Sale (1st ed. 1734); and Rodwell (1862), into English; Savary (1783), Garcin de Tassy (1829), Kasimirski (1840), into French; Megerlin (1772), Wahl (1828), Ullmann (1840), into German; besides the great number of Persian, Turkish, Malay, Hindustanee, and other translations made for the benefit of the various eastern Moslems. Of concordances to the Koran may be mentioned that of Flügel (Leip. 1842), and the Noojoom-ool-Foorkan (Calcutta, 1811). Of authorities whose works may be consulted on the Koran, we will chiefly name Maracci, Sale, Savary, Wahl, Geiger, Amari, Sprenger, Muir, Weil, Nöldeke.

KORAT', a dependency of Siam, between that country and Cambodia; pop. 60,000. It is situated on a high table-land, and its capital, which bears the same name, is a

stronghold nearly inaccessible on account of the approaches to it being through a dense and dangerous jungle. The inhabitants of Korat are chiefly engaged in agriculture, sugar being a staple product. Copper mining is also an important industry.

KORDOFAN', or the White Land, a province of the Egyptian territories in the Sudan, is bounded on the e. by the White Nile, which separates it from Sennaar, and is separated on the w. from Darfur by a strip of desert. It extends in lat. from 10° to 15° 20′ n., and the area of its more or less cultivated portion has been estimated at 12,000 sq.m., and its population at 400,000. The province is traversed by no rivers; wells, however, abound, water being found almost everywhere at a comparatively small depth. In the s. the surface is undulating, and the soil argillaceous and productive; and here dourra and maize are grown. In the n. and w. the surface is an elevated plateau, and the soil sandy, but peculiarly fitted for the cultivation of millet, which is the staple article of food. The employments of the people are chiefly agricultural. In the s. horned cattle and horses are extensively reared, but in the n. and w. the nomad inhabitants depend for support entirely upon their large herds of camels, which are hired out for the transport of produce and merchandise. The chief trees are acacias, yielding gum-arabic. Iron ore is obtained and wrought in the country. Slavery, which had formerly been general, and had formed an important branch of trade in Kordofan, was abolished in 1857 by Said pasha, the Egyptian viceroy. The people are Mohammedans.

The inhabitants are partly Arabs, partly a mixed Arab and negro race. The capital is Lobeid or Il-Obeid (q.v.). In 1770 Adlân, king of Sennaar, made a conquest of Kordofan, and about six years after, the sultan of Darfur overran the province and annexed it to his territories. Under the sultan, the inhabitants were but lightly taxed; trade was opened up with the Sudan and Arabia; and the markets of Il-Obeid and Bara, the chief towns, were stored with the produce of Arabia, India, and Abyssinia. This period of prosperity, however, was brought to a close by the invasion of Kordofan, in 1821, by an Egyptian army. Since then Kordofan has remained a province of the Turkish empire, under the viceroy of Egypt.

KORNEGAL'LE, or KORNEGAL, a t. of Ceylon, 48 m. n.e. of Columbo; pop. 3,682; beautifully situated in the shade of an immense rock and in the midst of dense woods. It was anciently one of the capitals of Ceylon. It is a great resort for pilgrims on account of an ancient temple on a rock, in which is hollowed, as the legend relates, the footprint of Buddha.

KÖRNER, THEODOR, a patriotic German poet, was b. at Dresden, Sept. 23, 1791, and after the publication of a collection of immature verses in 1810, betook himself to the university of Leipsic. Here the young author, who had no aptitude for serious and solid studies, was led into several irregularities, which necessitated his leaving the university. After a short residence in Berlin, he went to Vienna, and began to write for the stage. His *Der Grüne Domino* (The Green Domino); *Die Braut* (The Bride); and *Der Nachtwächter* (The Night-watchman), are among the best German comedies. His two most important dramas, *Zriny* and *Rosamunde*, though destitute of that sagacity of thought and knowledge of mankind which are essential to the permanent success of such works, are full of noble enthusiasm. The uprising of the German nation against the despotism of Napoleon inspired Körner with patriotic ardor. He joined the army of liberation, and displayed heroic courage in many encounters. The songs which he now wrote—several of them in the camp—and published under the title of *Leier und Schwert* (Lyre and Sword), stirred his countrymen mightily. Their chief power, however, probably lies in their impassioned nationality; foreigners at least fail to recognize in them much more, yet the Germans regard them with a kind of sacred admiration that forbids criticism. The most famous of these pieces is his *Schwert-Lied* (Sword-Song). Körner was killed in battle near Rosenberg, Aug. 26, 1813. A collected edition of his works (*Sämmtliche Werke*, 1 vol. Berl. 1834; 4 vols. 1842; 4th edit. 1853) was published by Streckfuss. A biography of the poet, written by his father, has been translated into English, "with selections from his poems, tales, and dramas," by G. F. Richardson (Lond. 2 vols. 1845).

KÖRÖS', NAGY, or GREAT KÖRÖS, an important market t. of Hungary, in the county of Pesth, is situated in a sandy district, 49 m. s.e. of the city of that name. Black cattle and sheep are here extensively reared, and an excellent red wine is grown. Pop. '69, 20,091.—KISS KÖRÖS, or Little Körös, is a small t., situated 38 m. s.w. of the foregoing, and also engaged in the production of wine. Pop. '80, 6,834.

KOROTCHA, or KAROTCHA, a t. of Russia, on a small river of the same name, in the government of Kursk, 75 m. s.e. of the town of Kursk. The town is well built, and has several churches. Saltpeter is manufactured, and a trade in apples carried on. Pop. '80, 6,560.

KORTETZ', or CORTITZ, a Russian island in the Dnieper river, rising to a height of 165 ft. above the level of the water, and formerly a Cossack stronghold. In 1784 the empress Catharine II. removed the Cossacks, and replaced them with a colony of German Mennonites. In 1871, owing to the conscription practiced in Russia, many of the Mennonites emigrated to America, whereupon the emperor modified the stringency of

the laws. Kortetz contains 16 villages, whose inhabitants are chiefly devoted to agriculture, though there are manufactures of cotton and wool.

KORVEI. See CORVEI, *ante.*

KOSCIUS'KO, a co. in n. Indiana, intersected by the Tippecanoe river, and by the Pittsburg, Fort Wayne and Chicago, and Cincinnati, Wabash and Michigan railroads; 567 sq.m.; pop. '80, 26,494. The productions are wheat, maize, oats, hay, wool, dairy products, cattle, and lumber. There are but few manufactures. Capital, Warsaw.

KOSCIUSKO, MOUNT, the highest elevation of the Australian Alps, being 7,176 ft. high, and situated nearly in lat. 36° 30′ s., and long. 134° 30′ w., on the boundary between the provinces of New South Wales and Victoria. The head-waters of the Murray and Murrumbidgee rivers are nearly at the base of the mount.

KOSCIUSKO, TADEUSZ, a great Polish gen. and patriot, b. about the middle of last century, in the province of Minsk, western Russia, was descended from an ancient and noble but not wealthy Lithuanian family. He became a capt. in the Polish army, went to America, and served in the war of independence. He returned to Poland in 1786 with the rank of gen. of brigade. In the campaign of 1792 he held a position at Dubjenka for five days with 4,000 men against 16,000 Russians, although he had had only 24 hours to fortify it, and finally withdrew his troops without much loss. This brilliant feat of arms laid the foundation of his military reputation. When king Stanislaus submitted to the will of the empress Catharine, Kosciusko resigned his command, and retired to Leipsic, but returned in 1794, and put himself at the head of the national movement in Cracow, and afterwards in Warsaw. With 20,000 regular troops and 40,000 ill-armed peasants he resisted for months the united Russian and Prussian army of 150,000 men. He was proof also against the most tempting proposals on the part of the Prussian king. He was at last overpowered by superior numbers in the battle of Maciejowice, Oct. 10, 1794, and fell from his horse, covered with wounds, and uttering the words "*Finis Poloniæ.*" He was kept a prisoner till after the accession of the emperor Paul, who restored him to liberty, gave him an estate with 1500 peasants, and handed to him his sword, which Kosciusko declined to receive, saying: "I have no more need of a sword, as I have no longer a country." He afterwards resigned the estate, and sent back from London the money which he had received from the emperor. He spent the remainder of his life chiefly in France, and his chief enjoyment was in agricultural pursuits. When Napoleon, in 1806, formed a plan for the restoration of Poland, Kosciusko felt himself restrained from taking an active part in it by his promise to the emperor Paul. The address to the Poles, published in his name in the *Moniteur*, was a fabrication. In 1814 he wrote to the emperor Alexander entreating him to grant an amnesty to the Poles in foreign countries, and to make himself constitutional king of Poland. He released from servitude, in 1817, the peasants on his own estate in Poland. His death took place on Oct. 15, 1817, in consequence of his horse falling over a precipice. His remains were removed to Cracow by the emperor Alexander, and were laid side by side with those of John Sobieski. See the biographies by Falkenstein (1834), Chodzko (1837), and Paszkovski (Cracow, 1872).

KÖSLIN′, a manufacturing t. of Prussia, in the province of Pomerania, on the Mühlenbach, 7 m. from the Baltic sea, and 85 m. n.e. from Stettin. There are iron-foundries, and manufactures of paper, tobacco, etc. Pop. '80, 16,834.

KOSLOV. See KOZLOF, *ante.*

KOS SUTH, a co. in the n. part of Iowa; 576 sq.m.; pop. '80, 6,159. It is drained by the e. fork of Des Moines river, which divides it into two nearly equal parts. A large portion of the surface is prairie, and the soil is fertile. Wheat, corn, oats, and hay are the chief products. The county is traversed by the Iowa and Dakotah division of the Milwaukee and St. Paul railroad. Valuation of real and personal property, $2,000,000. Capital, Algona.

KOSSUTH, LAJOS (Louis), the leader of the Hungarian revolution, was b. in 1802 at Monok, in the county of Zemplin, in Hungary. His family is of noble rank, but his parents were poor. He studied law at the Protestant college of Sarospatak, and practiced first in his native county, and afterwards in Pesth. In 1832 he commenced his political career at the diet of Presburg as editor of a liberal paper, which, owing to the state of the law, was not printed, but transcribed and circulated. The subsequent publication of a lithographed paper led, in May, 1837, to Kossuth's imprisonment. He was liberated in 1840, and became again the editor of a paper, in which he advocated views too extreme for many of the liberal party amongst the nobles, but which took strong hold of the people in general, especially of the youth of the country. In Nov., 1847, he was sent by the county of Pesth as deputy to the diet, and soon distinguished himself as a speaker, and became the leader of the opposition. He advocated the emancipation of the peasants, the elevation of the citizen class, the freedom of the press, etc., and after the French revolution of 1848 openly demanded an independent government for Hungary, and constitutional government in the Austrian hereditary territories. To his speeches must in great part be ascribed not only the Hungarian revolution, but the insurrection in Vienna in Mar., 1848. On the dissolution of the ministry in Sept., 1848, he found himself at the head of the committee of national defense, and now prosecuted

with extraordinary energy the measures necessary for carrying on the war. To put an end to all the hopes and schemes of the moderate party, he induced the national assembly at Debreczin, in April, 1849, to declare the independence of Hungary, and that the Hapsburg dynasty had forfeited the throne. He was now appointed provisional governor of Hungary; but being disappointed in his hopes for the intervention of the western powers, and finding the national cause jeopardized by the arrival of Russia on the scene of action, he endeavored to arouse the people to a more desperate effort. The attempt was vain. Finding that the dissensions between himself and Görgei (q.v.) were damaging the national cause, he resigned his dictatorship in favor of the latter. After the defeat at Temesvar on Aug. 9, 1849, he found himself compelled to abandon his position, and to flee into Turkey, where, however, he was made a prisoner; but though his extradition was demanded both by Austria and Russia, the porte, true to the principle of hospitality, resisted all their demands. In Sept., 1851, he was liberated, and the government of France refusing him a passage through their territory, he sailed in an American frigate to England, where he was received with every demonstration of public respect and sympathy. In Dec. of the same year he landed in the United States, where he met with a most enthusiastic reception. He returned in June, 1852, to England, and there he chiefly resided until the Italian war broke out against Austria, when almost the whole of the Hungarian emigrants left for Italy with Kossuth. He now resides in Turin.

KOSTRO'MA, a government of Great Russia, is bounded on the w. by the government of Jaroslav, and on the e. by the district of Kazan. Area, 30,834 sq.m.; pop. '80, 1,251,718. The surface is generally flat, marshy, interspersed with lakes, and, especially in the n. and e., with extensive and dense forests. The greater part of the soil is uncultivated. The chief rivers are the Volga, with its tributaries the Kostroma, the Unja, and the Vetluga. The climate is severe. Agriculture is the principal occupation of the inhabitants, and grain is produced in sufficient quantity for local consumption. Flax and hemp are extensively cultivated; mats, pitch, tar, and potash are largely manufactured and exported; and there is a flourishing trade in timber.

KOSTRO'MA, capital of the government of that name, in European Russia, is situated near the junction of the Kostroma with the Volga, and 564 m. from St. Petersburg. It was founded in the middle of the 12th c., and suffered much from the invasions, first of the Tartars, afterwards of the Poles. Kostroma has considerable manufactures, chiefly of linen, and trades in corn, tallow, timber, linseed oil, and leather. Pop. '80, 30,405.

KÖSZEGH. See GÜNS, *ante.*

KO'TAH, the chief t. of a protected state of the same name, is situated in Rajpootana, in lat. 25° 10′ n., and long. 75° 52′ east. It is on the right bank of the Chumbul, and is fortified with a rampart and a ditch. The town is tolerably wealthy, being, moreover, of considerable size and of some architectural pretensions. In 1857, notwithstanding the fidelity of the rajah to the British government, Kotah fell under the power of the mutineers, remaining in their possession until March 30, 1858, when it was stormed by gen. Roberts. The principality contains 4,400 sq.m., with an estimated population of 440,000

KÖTHEN, a thriving manufacturing t. in the duchy of Anhalt, in Germany, pop. 13,563, situated about 30 m. from Leipsic, is the meeting-place of three lines of railroad: the Berlin and Anhalt, Magdeburg and Leipsic, and Köthen and Halberstadt. It has a number of public buildings, excellent educational facilities, and a considerable trade, in which sugar-refining is the most important factor. Formerly it was the capital of the duchy of Anhalt-Kothen, but in 1863 this became a part of the united duchy of Anhalt.

KOTTBUS. See COTTBUS, *ante.*

KOTZEBUE, AUGUST FRIEDRICH FERDINAND VON, a most prolific German dramatist, was b. at Weimar, on May 3, 1761, and after a checkered life, spent first in Russia and afterwards in Austria and Germany, was assassinated at Mannheim, March 23, 1819, on account of his hostility to the liberal movement. Among his dramatic performances (the chief merit of which consists in their superior knowledge of stage-effect) may be mentioned *Die Indianer in England* (The Indians in England); *Menschenhass und Reue* (Misanthropy and Repentance)—the latter, under the title of *The Stranger*, being well-known on the English boards; *Die beiden Klingsberg* (The Two Klingsbergs); *Die Spanier in Peru,* etc. Kotzebue wrote no fewer than 98 dramas, which have been collected in editions of 28 (Leip. 1797–1823) and of 44 vols. (1827–29). Several of them have been translated into English.

KOU'BA, a t. in the s. of Asiatic Russia, on the eastern slope of the Caucasus, in the government of Baku, 55 m. s.s.e. of Derbend, lat. 41° 22′ n., long. 48° 31′ east. Agriculture, fishing, the rearing of silk-worms, and trade with Astrakhan and Persia, chiefly employ the inhabitants. Pop. '80, 13,062. It was annexed to Russia in 1806.

KOUBAN', a river in the s. of Russia, rises on the declivity of Mount Elburz, and flows first n., then w., separating the governments of Stavropol and the Cossacks of the Black sea from Circassia. It is about 400 m. in length, exclusive of its windings, and it falls partly into the Black sea, partly into the sea of Azof.

KOULI KHAN. See NADIR SHAH, *ante.*

KOU'MISS, or KU'MISS, an intoxicating beverage much esteemed by the Kalmucks. It is made from the soured and fermented milk of mares. It has an acidulous taste. A spirit is obtained from it by distillation. The tribes which use koumiss are free from pulmonary phthisis, and the observation of this fact has led to the beneficial use of an artificial koumiss, made of ass's and cow's milk, in cases of consumption.

KOUSNETZK', a t. of Russia, on the northern border of the government of Saratov 110 m. n.n.e. of the town of that name. Pop. '80, 14,186, who are employed chiefly in bee-keeping and in woolen manufactures.

KOVNO, a government of w. Russia, lies immediately s. of the province of Courland, and is bounded on the s.w. by Prussia and Poland. Area, 15,650 sq.m., not more than one-third of which is cultivated, and about one-third under wood. Flax and honey are important products. Pop. '80, 1,403,079. The surface is flat and marshy, and there are numerous lakes. The chief rivers are the Niemen, with its tributaries the Vilia, Neveja, and Doubissa. Plica Polonica (q.v.) is common among the peasantry. Previous to 1843, this government formed a part of that of Wilna.

KOV'NO, capital of the government of the same name, in European Russia, near the confluence of the Vilia and the Niemen, was founded in the 10th c., and was the scene of many bloody conflicts between the Teutonic knights and the Poles during the 14th and 15th centuries. Its commerce, notwithstanding its advantages of situation—being not only near the confluence of two navigable rivers, but also on the great railway from St. Petersburg to Berlin—is very insignificant. Pop. '80, 42,227.

KOZEILSK', a district t. of Great Russia, in the government of Kaluga, and 40 m. s.w. of the town of that name, stands on the right bank of the river Jisdra. Pop. '80, 13,406. It carries on a great trade in hemp, and an extensive manufacture of sail-cloth. Kozeilsk is famous in history for the brave but unsuccessful resistance made here to Batu-Khan of Kiptchak.

KOZLOF', a t. of Russia, in the government of Tambov, is advantageously situated on the Voronetz. It is a flourishing town, has numerous woolen, linen, and other factories, and a pop. of ('80), 25,522.

KRAGUJEVATZ, a t. of Servia, on the Lopenitza, has an important arsenal and gun-factory. Pop. '74, 6,663.

KRAJO'VA, a t. of Roumania, in Little Walachia, near the eastern bank of the Schyl, 120 m. w. of Bucharest. It is the residence of many rich bojars (nobles), carries on considerable commerce, and has a pop. of 25,000.

KRA'KEN, a fabulous animal, first described by Pontoppidan in his *Natural History of Norway,* and from time to time said to have been seen in the Norwegian seas. Enormous magnitude is ascribed to it; it is said to rise from the sea like an island, to stretch out mast-like arms, by which ships are readily drawn down, and, when it sinks again into the deep, to cause a whirlpool, in which large vessels are involved to their destruction. The fable of the kraken has considerable analogy to the more recent stories of the great sea serpent (q.v.). It is not, however, to be summarily rejected as mere unmingled fable. There may, perhaps, be some foundation for it in the occasional appearance of huge cephalopods, to the general characters of which the description given of its form and monstrous arms sufficiently agrees, great exaggeration as to size being of course allowed for. Large as are some of the cephalopods known to exist in some seas, there are reasons for supposing that creatures of this kind do exist much larger than any that have been accurately described; and stories, similar to the Norwegian ones recorded by Pontoppidan and others, are current in different parts of the world. Such is the story told by Pliny concerning a vast animal with prodigious arms which impeded the navigation of the strait of Gibraltar. See *Chambers's Edinburgh Journal,* 1st series, xi. 226.

KRAME'RIA. See RATTANY ROOT.

KRANACH, LUCAS. See CRANACH, *ante.*

KRANTZ, ALBERT, 1450–1517; b. Germany; having studied philosophy and theology at Hamburg and Rostock, and having made the tour of Europe, he returned to receive his degree at Rostock, and to fill the office of rector in the university. In 1489, having been elected syndic of Hamburg, he was present at the assembly of Wismar, taking a prominent part in the discussion relative to the interests of the Hanseatic towns, and was sent by them as ambassador to France in 1497, and to England in 1499, for the purpose of securing them as allies against the pirates of the North sea. In 1500 he was chosen arbitrator by John, king of Denmark, and Frederick, duke of Holstein, to settle their difference on the subject of the province of Ditmarsen. In 1508 he was appointed dean of his chapter, and labored diligently to eradicate the evils that had crept into ecclesiastical discipline. He, however, condemned the first attack of Luther on the Romish church. His principal works are *Chronicles of the Kingdoms of Sweden, Denmark, and Norway,* in the Latin tongue, and *Ecclesiastical History of Saxony.* He was approved by Cisner as an author of the first rank among contemporaneous writers.

KRAPI'NA, a t. of the Austrian empire, in the province of Croatia, on a river of the same name, a branch of the Save, at the southern base of the Ivanica mountains, 140 m. s.s.e. from Vienna. The surrounding country is very fertile, abounding in corn and wine; and the town has of late rapidly increased in size.

KRAPOTKINE, Prince. See page 892.

KRASIC'KI, Ignacy, 1734–1801; born in the province of Galicia, Poland. His family, which was of the highest distinction, destined him for the church. He completed his studies for the priesthood at Rome, was made a canon, and, in 1767, bishop of Ermeland. His diocese, by annexation, passed under the rule of Frederick the great, with whom Krasicki's talents for satire soon made him a favorite. He was promoted to the archbishopric of Gnesen, 1795. He wrote much in verse, chiefly satires and fables. Besides his version of the old story of the king of Poland devoured by mice, we may mention his *Monachomachia*, or *War of Monks*. He also translated *Ossian* into Polish.

KRASIN'SKI, Zygmunt Napoleon, Count, 1812–59; b. in Poland. He was led by his enthusiasm for the restoration of Polish autonomy to refuse to enter the Russian service, in which his father held a high position. He celebrated in verses of considerable power, especially the lyrical portion, the aspirations of his countrymen, and more generally of the Slavic races. His *Nubiska Komedya* (Undivine Comedy) has been imitated by the present lord Lytton (Owen Meredith) in his *Fool of Time*.

KRASNOIARSK', chief t. of the Siberian government of Yeniseisk, is situated on the great road from Europe to e. Siberia, at a distance of 3,197 m. from St. Petersburg. It contained, in 1880, 14,159 inhabitants, chiefly Cossacks, some of whom possess numerous herds of cattle and horses. There is a considerable trade in furs, and there are about 30 tan-yards and other factories.

KRASNOVODSK', a Russian fortress on the s.e. shore of the Caspian sea, on the bay of Krasnovodsk, a place of both military and scientific importance. It was from this point that Peter the great moved upon Khiva, and it has been the starting-place of several important exploring expeditions. After the time of Peter the great it was neglected, but was restored to use in 1869. One of the three Russian columns that advanced upon Khiva in 1873 started from this point.

KRASSO, a co. in s. Hungary, w. of Transylvania, 2,019 sq.m.; pop. '70, 259,079; is heavily wooded, but contains good pasture land and productive mines. The inhabitants are chiefly Roumanians, with an admixture of Germans, Magyars, and Croats. Co. town, Lugos.

KRASZEW'SKI, Josef Ignacy, b. Warsaw, 1812; was educated at the university of Wilna, and in 1837 married and settled in Volhynia. The revolutionary period of 1830 aroused his sympathy and secured his practical aid, and in 1831 he was arrested and not released until 1834. For five years, between 1853 and 1858, he was curator of schools in Volhynia. In 1860 he was an editor in Warsaw, and three years later settled in Dresden, and delivered lectures. He was a versatile writer, and published as many as 300 volumes of fiction, travels, history, and poetry.

KRASZNA, a co. in e. Hungary, formerly a part of Transylvania; 444 sq.m.; pop. 62,714; is mountainous, the valleys only yielding to agriculture. In 1860 it was formed into a separate county. Capital, Szilágy-Somlyo.

KRAUSE, Karl Christian Friedrich, 1781–1832; b. Germany; having been educated at the university of Jena, and having filled the office of tutor for two years, resided for the next 20 years at Rudolstadt, Berlin, and Dresden, pursuing philosophical studies and making occasional journeys into the s. of Germany, visiting France and Italy. In 1824 he returned to Göttingen, lecturing there on philosophy until 1831, when he went to live as a private citizen at Munich. He had socialistic views of an original type, anticipatory of a millennium of harmony and unity, in which all mankind should be associated in a common labor for universal development; finding in freemasonry, as he thought, the first principles of such an organization. Among his works on this subject were published in 1810: *Die drei ältesten Kunsturkunden der Freimaurerbruderschaft; Höhere Vergeistigung der echt überlieferten Grund-symbole der Freimaurerei;* and *Urbild der Menschheit*. In 1828–29 he published two works on philosophy.

KRAUTBAUER, F. X., d.d. See page 892.

KRAUTH, Charles Porterfield, s.t.d., ll.d., b. 1823; graduated at Pennsylvania college, Gettysburg, 1839; was ordained to the ministry of the Lutheran church, and was pastor of churches in Virginia, Maryland, and Pennsylvania. In 1864 he was appointed professor of systematic theology in the Lutheran theological seminary at Philadelphia, and in 1868 he accepted the professorship of intellectual and moral philosophy at the university of Pennsylvania. He was an authority on the history, doctrines, and liturgy of the Lutheran church, his chief work being *The Conservative Reformation and its Theology*. He d. 1883.

KRAYOVA. See Krajova, *ante*.

KRAZINSKI, Count Valerian, a scion of an illustrious Polish family that had early adopted the Protestant religion, was b. about 1780. Being possessed of great natural abilities, which were improved and matured by a thorough education, he was appointed one of the chief officials in the bureau of public instruction for Poland. He strenuously

exerted himself to promote education among the various classes of dissenters, and with a view to this, introduced at great expense to himself, the process of stereotyping. When the Poles rebelled in 1830, and set up an independent government, Krazinski was sent as their representative to London, where, from 1831, he remained as an exile for 20 years, and then removed to Edinburgh, where he died Dec. 22, 1855. Being a man of extensive learning, and possessing a profound knowledge of the history and literature of the Slavonic nations, his works are of considerable authority. The chief are: *The Rise, Progress, and Decline of the Reformation in Poland* (Lond. 2 vols. 1839–40); *Lectures on the Religious History of the Slavonic Nations* (Lond. 1849); *Montenegro and the Slavonians in Turkey* (Edin. 1853), together with some translations, religious works, and political pamphlets on the subject of Poland.

KREASOTE. See CREASOTE.

KREATINE. See CREATINE.

KRE'FELD, an important manufacturing t. of Rhenish Prussia, 12 m. n.w. of Düsseldorf. It owes its importance to the settlement here, in the 17th and 18th centuries, of numerous refugees, who were driven from the neighboring countries by religious persecution, and who established here the silk and velvet manufactures for which Krefeld is now the most noted town in Prussia. In 1870 the quantity of silk produced was estimated at 1,100,000 lbs., and the value of the fabrics exported was upwards of £3,000,000. The number of hands employed in these manufactures is very great. Krefeld also carries on manufactures of woolen cloth and yarn, cotton goods, machinery, and chemicals. Pop. '71, 57,128; '80, 73,872, three-fourths of whom are Roman Catholics.

KRELING, AUGUST VON. See page 893.

KREMENCHUG', a district t. of Little Russia, in the government of Poltava, on the left bank of the Dnieper, 90 m. above Ekaterinoslav. It was founded in the 16th c. by Segismundus-Augustus, king of Poland, as a barrier against the Tartars. During the reign of Catharine II. it was the chief town of New Russia, and it is now the seat of great commercial and industrial enterprise, containing 34 factories, chiefly for melting tallow and for rope-making. Pop. '80, 37,579.

KREMENETZ', a district t. of west Russia, in the government of Volyn (Volhynia), is situated 130 m. w. of Jitomir, and about 20 m. from the frontier of Austrian Galicia. It had, in 1880, 11,039 inhabitants, and seven annual fairs are held here, but, owing to the want of river communication, the commerce is limited.

KREMLIN. See Moscow.

KREM'NITZ, a t. of Hungary, in the co. of Bars, in a deep gloomy valley, 12 m. w.s.w. of Neusohl. It is famous for its gold and silver mines, which, however, are less productive now than formerly. Pop. '80, 8,550, who are almost entirely of German origin.

KREMS, a t. of Lower Austria, in a picturesque district on the Danube, at the confluence of the Krems with that river, 38 m. w.n.w. of Vienna. It manufactures mustard and powder, and trades in wine. Pop. '80, 11,042.

KREMSIER, one of the prettiest towns of Moravia, 88 m. n.e. of Olmütz, on the March. It is the summer residence of the archbishop of Olmütz, who has here a fine palace, containing a picture-gallery and a library of 30,000 volumes. During the revolutionary disturbances at Vienna in 1849, Kremsier was the seat of the Austrian government and imperial councils. Pop. '80, 11,816.

KREU'ZER—from the cross (*kreuz*) formerly conspicuous upon it—a small copper coin current till 1876 in southern Germany, the 60th part of the gulden or florin (q.v.).

KREUZ'NACH, a t. in the province of Rhenish Prussia, on the Nahe, a few miles from its junction with the Rhine, and 38 m. s.s.e. of Coblentz. It has crooked narrow streets, and old-fashioned houses, with a pop. in '80, of 15,321. It dates its existence from about the 9th century. It is chiefly notable, however, for its salt springs, which were discovered in 1478, and which, containing iodine and bromine, are serviceable in many diseases. It is therefore much frequented. The springs range from 45½° to 84° F.

KRIMMITSCHAU', a t. of Saxony, about 37 m. s. of Leipsic, on the railway between that place and Hof. It is a busy manufacturing town, the industrial products being woolen yarn, woolen and cotton fabrics, buttons, needles, etc. Pop. '71, 15,280; '80, 18,925.

KRIS, a dagger or poniard, the universal weapon of the inhabitants of the Malayan archipelago. It is made of many different forms, short or long, straight or crooked. The hilt and scabbard are often much ornamented. Men of all ranks wear this weapon; and those of high rank, when in full dress, sometimes carry three or four. In Java, women sometimes wear it.

KRISH'NA, the eighth Avatâra or incarnation of the Hindu god Vishnu. See VISHNU.

KRISH'NA RIVER. See KISTNAH, *ante.*

KRISS KRINGLE. See NICHOLAS, SAINT.

KROEGER, Adolph E., b. near Friedrichstadt, Germany, 1837. His father was a minister, and in 1848 the whole family came to America and settled at Davenport, Iowa, where young Kroeger some years afterwards entered a banking-house as clerk. During the three years preceding the rebellion he was engaged upon the *New York Times* as a translator. During the war he served upon gen. Fremont's staff. His writings and translations have contributed not a little toward bringing German literature into notice in the United States. In 1873 he published *The Minnesingers of Germany.*

KROLOWEZ', a t. of Little Russia, in the government of Tchernigov, is situated 100 m. e. of the town of that name. A famous annual market is held here. Pop. '80, 13,526.

KRO'NENBERG, a t. of Rhenish Prussia, 3 m. s.e. from Elberfeld, in the industrial activity and prosperity of which it has partaken. Manufactures of linen and cotton are carried on, also of articles of iron and steel. Pop. '80, 8,214.

KRONSTADT, a seaport in Russia. See Cronstadt, *ante.*

KRONSTADT, a city in Transylvania. See Cronstadt, *ante.*

KROO, or Kru, an idolatrous negro race, supposed to have originated in central Africa, and to have been driven thence by the Mandingoes and Foolahs to Liberia. At present they are settled on the St. Paul river, their country reaching from cape Mesurado to St. Andreas. They are a powerful tribe, known as Kroomen, and are particularly fond of the sea. They are very black, woolly-headed, stout and active, and are much employed on the coast as sailors and boat-builders. They occupy a tract of land about 70 m. in length, extending inland only a few miles. They are polygamous, devoting their earnings chiefly to buying wives, who take care of them when they become old and infirm. Missionaries have made efforts to convert the Kroomen, but without success.

KROS'SEN, a walled t. of Prussia, on the left bank of the Oder, 32 m. s.e. of Frankfort. There are manufactures of woolen, linen, leather, and earthenware. Pop. '80, 6,746.

KROTOSCHIN', or Krotoszyn, a t. in the province of Posen, Prussia; pop. '71, 7,866; manufactures considerable tobacco and produces wool. It also has manufactures of linen. More than one-third of the population are Jews, but there are places of worship for Protestants and Roman Catholics.

KROZET ISLANDS. See Crozet, *ante.*

KRUDENER, Juliana von, a religious visionary and enthusiast, daughter of baron von Vietinghoff, was b. at Riga in 1766. When she was but 14, she married the baron von Krüdener, a Livonian nobleman, who held the post of Russian ambassador at Venice. Her married life, however, was unhappy, and after the birth of a son and daughter, she was divorced from her husband. The succeeding incidents of her stormy career are supposed to form the groundwork of the novel of *Valerie,* which she published in 1803. After many adventures, M. von Krüdener came to Berlin, where she was admitted to the close intimacy of the queen, Louisa, of all whose projects M. von Krüdener was the confidante and sharer. The shock occasioned by the death of this princess is said to have disturbed the balance of M. von Krüdener's mind; and from that date she became a zealous disciple of the celebrated pietist, Jung Stelling, and ultimately gave herself up to religious mysticism in its most exaggerated form. From Berlin she moved to Paris, where she appeared as a prophetess, and the herald of a new religious era; and she attracted such notice by the fulfillment of certain of her predictions of public events, as of the fall of Napoleon, his return from Elba, and the final crisis of Waterloo, as to obtain access to the emperor Alexander, and eventually to acquire much influence over him. Her gigantic schemes for the elevation of the social and moral condition of the world, caused her to appear a dangerous character in the eyes of persons in authority, and she was obliged to withdraw from France and other countries in succession. In consequence, she retired to one of her paternal estates near Riga, where she entered into relations with the Herrnhüter or Moravian brethren; but her restless disposition soon carried her into fresh enterprises, the latest of which was the formation of a great correctional establishment in the Crimea for the reformation of criminals and persons of evil life. In the midst of her efforts for this object, she died at Kara-su-bazar, Dec. 13, 1824. Besides the novel already named, her only other work was a pamphlet entitled *Le Camp des Vertus* (Paris, 1815); but many curious details of her conversation and opinions are preserved in Krug's *Conversations with Madame von Krüdener,* published at Leipsic in 1818.

KRUELL, Gustav. See page 893.

KRUG, Wilhelm Traugott, 1770–1842; a follower of Kant, whom he succeeded in 1804 as professor of metaphysics at Königsberg. He became professor of philosophy at Leipsic in 1809. In his *Fundamental Philosophie* he attempted to harmonize realism and idealism.

KRU'MAU, a small t. of Bohemia, on the Moldau, 14 m. s.s.w. of Budweis. Its castle, a fine structure placed on a rock, contains five separate courts, and is surmounted by numerous towers and pinnacles. There are some manufactures. Pop. 5,170.

KRUMMACHER, Friedrich Adolf, 1768–1845; b. Prussia; having been educated for the church, was appointed professor of theology in a university in Duisburg, which in 1818 was transferred to Düsseldorf. In 1819 he was a member of the consistorial council, and court preacher at Bernburg subsequent to his pastoral labors in Crefeld and Kettwich. In 1824 he was pastor of the Reformed congregation at Bremen. He was the eldest of a family who were distinguished among the German clergy. He was a believer in evangelical religion, and most widely known by his *Parables*, published in 1805, which passed through many editions, were illustrated, translated into English, and attained great popularity in Germany and other countries. He wrote, besides a drama of *Johannes* and *Hymn of Love*, a large number of religious and poetical works, among them *Die Kinderwelt*, sacred poems for children; *The Suffering, Death, and Resurrection of our Lord Jesus Christ; Cornelius the Centurion;* and *The Life of St. John.*

KRUMMACHER, Friedrich Wilhelm, the son of F. A. Krummacher, a clergyman who distinguished himself by his zeal for old Lutheranism, and also as an opponent of the rationalists. Some of his works, particularly his discourses on the history of *Elijah the Tishbite*, have not only acquired a great popularity in Germany, but, by means of translations, in Britain and America. Along with this may be named his discourses on the life of Elisha. In 1843 he was called as preacher to a German Reformed congregation in New York, but returned to Bremen in 1847, and subsequently was chaplain at the Prussian court at Potsdam. Krummacher was considered a most eloquent preacher. He died in 1868.

KRUMMACHER, Gottfried Daniel, 1774–1837; b. Germany; educated at Duisburg, once the seat of a Protestant university; became a popular preacher of the Reformed church. He embraced the spiritual and living faith of the pietists, the adherents of a movement which originated and was developed within the German Lutheran church in the 18th c., and with which church it never severed its connection. In 1816 he accepted the pastorate of the church at Elberfeld, on the Wipper, near the city of Barmen and 16 m. from Düsseldorf, and was the acknowledged head of the pietists of that district. In 1832 he published *Sermons on the Wanderings of the Children of Israel*, and in 1838 *Daily Manna*. In the English translation the title of the latter was changed to *The Christian's Every-day Book.*

KRUMM'HORN (Ital. *cormorne*) is the name of a very old wind-instrument made of wood, the under part of which is bent outwards in a circular arc.—Krummhorn is also the name of an organ-stop, found in almost all German organs, and generally of 8 ft. pitch. The pipes are made of tin, the body or sounding part being cylindrical, and partly shut at the upper end. The Italian name of *cormorne* has been corrupted by English organ-builders into *cremona*, which is the same stop in English organs. The sound of the krummhorn as an organ-stop is soft and quiet; but it is defective in not keeping in tune so well as other reed-stops.

KRUPP, Alfred, b. Prussia ; son of Friedrich (d. 1826, founder of the steel-works at Essen) ; succeeded to the administration of this enormous manufacturing establishment in 1848. The old firm-name Friedrich Krupp is retained. In 1876 the Krupp manufactory exhibited in the centennial exhibition at Philadelphia. The magnitude of this establishment is shown by a few figures: it has more than 1000 furnaces, nearly 300 steam-engines, 15 locomotives, nearly 1000 cars, more than 3,000 dwelling-houses; owns more than 400 mines, also smelting-houses and blast-furnaces; and employs about 20,000 men in its various departments. See Krupp's Steel, *ante.*

KRUPP'S STEEL. The widespread reputation of the steel produced in the great works of Herr Krupp, at Essen, in Prussia, has induced us to give it a brief notice. His manufactory, always a large one, has been gradually increasing in size during the last half century, until it now covers nearly 1000 acres, and gives employment to some 14,000 persons. For large metallurgical works, Essen is favorably situated, being in the center of a coal-bearing area, where coal of the purest kind can be comparatively cheaply procured. There is also at hand the manganiferous iron ores of Prussia, which have been found so excellently adapted for the manufacture of steel; but it is believed that the admirable organization of every part of his manufactory has conduced, as much as anything, to the great success of Krupp. With laborers and mechanics who have passed the regulation-time in the Prussian army, overseers trained in the German technical schools, and a small staff of experienced analytical chemists, he has obviously a great advantage in conducting operations where order, system, and skill are of paramount importance. But even with these benefits, Krupp's productions would not have gained their celebrity, were it not for the scrupulous care with which he performs every manipulation.

In the article Iron we have described the manufacture of steel by the *cementation* and *Bessemer* processes, but there are several other methods of making it, and one of these is by the decarburization of cast-iron in the puddling furnace. This is the process by which Krupp makes his steel, in the first instance; and the material he most largely employs is *spiegeleisen*, or specular cast-iron, a highly crystalline variety, usually containing about 4 per cent of manganese. This iron is admirably suited for conversion into steel. The puddling process for steel is similar to that employed for iron (q.v.),

except that the former is conducted at a lower temperature, and requires nicer management; but in the case of steel, the cast-iron to be operated upon is never previously refined. Cast-iron to the extent of about 4 cwts. is melted in the puddling furnace, mixed with a quantity of slag or cinder (chiefly silicate of iron), and stirred with a rabble. During this operation, the carbon in the cast-iron (usually about 5 per cent) is gradually oxidized by the oxygen present in the cinder; carbonic oxide is produced, and as it escapes, what is technically termed "boiling" takes place. When the ebullition becomes active, the temperature is raised until the appearance of incipient solidification occurs; the heat is then lowered, and the ordinary process of balling proceeded with. Steel thus produced usually contains from 0.5 to 1 per cent of carbon; but if the temperature is not skillfully regulated, the carbon becomes wholly burned away, and malleable iron instead of steel is produced.

Puddled steel, although useful for most purposes in the arts (except cutlery), nevertheless wants homogeneity, on account of a certain intermixture of cinder, which is difficult to get rid of without fusion—a defect which is apt to prevent it from welding perfectly. In Krupp's works the puddled steel is remelted into crucibles, in order to convert it into cast-steel; and it is the wonderful uniformity of quality with which he manufactures this in very large masses, that constitutes the superiority of, and gives so great an interest to, his productions. The crucibles employed are made with extreme care, mainly from fire-clay, to which a little plumbago is added; their capacity varies from 50 to 100 lbs., and it is reported that as many as 100,000 are kept drying at the same time. After being once used, the crucibles are broken up, and mixed with other material, to make new ones.

In the casting-house, where the large ingots are run, the furnaces, which contain about 1200 crucibles, are arranged along the sides of the building; and in the central portion the steel molds, varying in capacity from 100 lbs. to 50 tons, are disposed in line between two pair of rails, upon which runs a movable crane. It is in the casting of such an enormous ingot as 50 tons of steel (the largest yet produced) from crucibles of small capacity that the perfect organization of Krupp's establishment becomes most strikingly apparent. At a given signal, one gang of workmen remove the crucibles from the furnaces, while another seize them with tongs for the purpose, and pour their contents into narrow canals of wrought-iron, lined with fire-clay, which converge into the opening by which the mold is filled. This is the critical stage of the operation, the difficulty being to deposit in the mold a continuous stream of melted steel of about the same degree of heat, so as to cool uniformly, and to solidify into a perfectly homogeneous mass. Of such uniform soundness are some of Krupp's large steel ingots, that one—shown in the London exhibition of 1862, 9 ft. high, 44 in. in diameter, and weighing 21 tons—when broken across did not show the slightest flaw, even when examined with a lens.

In order to manipulate these extraordinary masses of steel, there is a steel hammer, weighing 50 tons—the mechanical marvel of the works at Essen—which has a cylinder nearly 6 ft. in diameter. It has a 50-ton crane at each of its four corners, and behind each of these again there are four heating furnaces. A movable bench on low massive wheels serves to remove a large ingot from any of the furnaces, which is then, by means of the powerful cranes, and a system of pulleys and crabs, placed on the anvil, and worked into any desired shape. The anvil-face weighs 185 tons.

The quantity of steel manufactured by Herr Krupp annually amounts to about 125,000 tons, representing a value of about £3,000,000. It consists chiefly of rails, tires, crank-axles, shafts, mining pump-rods, and guns—the proportion of ordnance being about two-fifths of the whole. Guns have been made at Essen for the Prussians, Austrians, Belgians, Dutch, Italians, Turks, Japanese, and also for the English, although not directly ordered by the government. In 1874 the works included 1100 smelting and other furnaces, 275 coke-ovens, 264 forges, 300 steam-boilers, 71 steam-hammers, 286 steam-engines of 10,000-horse power, 1056 machine tools, 30 miles of railway, 80 telegraph stations, a chemical laboratory, and photographic, lithographic, printing, and bookbinding establishments. There is a fire-brigade of 70 men, besides 166 watchmen. In 1876 the consumption of coal and coke together amounted to 612,000 tons; that of gas, 7,300,000 cubic meters in 20,342 burners. Krupp has built good houses, hospitals, etc., for his men. Besides the works at Essen, the firm possesses several mines and smelting-works. In the Paris exhibition of 1867, Krupp showed a huge gun intended for a coast battery to defend the attacks of plated ships. It was made entirely of cast-steel, weighs 50 tons and could propel a shot weighing 1080 lbs. It took 16 months, working day and night without interruption, to manufacture. The price of the gun alone was £15,750, and of its carriage and turn-table, which weighed respectively 15 and 25 tons, £6,000 more. In the Vienna exhibition of 1873, Krupp showed, in a pavilion by themselves, a number of most interesting objects in steel. Among them were a huge gun like that shown at Paris, about 4 ft. 6 in. in its greatest diameter; an octagonal ingot, weighing fully 50 tons; a marine-engine shaft, 15 in. in diameter. He also exhibited at Philadelphia in 1876.

KRUSENSTERN, Adam John, Chevalier von, a distinguished Russian voyager, was b. Nov. 8, 1770, at Haggud in Esthonia. He served for some time in the British navy. The emperor Alexander, when he ascended the Russian throne, took up a plan proposed

by Krusenstern for the promotion of the American fur-trade, and consequently intrusted him with the command of an expedition at once for scientific and mercantile objects. Krusenstern sailed from Cronstadt with two ships, Aug. 7, 1803, and returned Aug. 19, 1806, and was the first to conduct a Russian expedition round the world. He failed in one of the objects for which he was sent out—the reopening of the Russian trade with Japan, but made some interesting geographical discoveries; and his careful explorations of coasts made his voyage very important for the progress of geographical science. He published an account of this voyage (3 vols. Petersb. 1810–12, with a volume of maps and plates), which was soon translated into all the principal languages of Europe. The contributions to natural history resulting from the expedition were the subject of a separate work by Tilesius (Petersb. and Leip. 1813); and Krusenstern himself subsequently published a work called *Contributions to the Hydrography of the Pacific Ocean* (1819), and several other works on the same subject. Krusenstern died in 1846 at Asz, in Esthonia, where he had an estate.

KRYLOV, Ivan Andrejevitch, a celebrated Russian fabulist, b. Feb. 13, 1768, at Moscow, was the son of a poor officer in the army, received the elements of his education at Tver from his mother, and learned French from a French tutor who was resident in the house of the governor of Tver. Krylov read indiscriminately all books which fell into his hands. Dramatical works made the greatest impression on him, and in his 15th year he wrote an opera called the *Kafeinitza* (The Coffee Fortune-Teller), which was never represented, but attracted considerable notice in Tver, and procured patrons for him, who got him an appointment, in 1785, in a public office in St. Petersburg. A bookseller gave him 60 roubles for the manuscript of his opera, which he spent in buying the works of Racine, Molière, and Boileau. In 1786 he wrote another tragedy, *Philomela*, which, although never represented, was printed in the collection called *The Russian Theater*. After the death of his mother, 1788, to whom he was much attached, Krylov received a post in the imperial cabinet, which he resigned two years afterwards, in order to devote himself to literary work. For two or three years, beginning in 1789, he occupied himself partly with journalism, but soon gave it up. He now produced a succession of prose comedies, among which were *The Crazed Family* (1793); *The Mocking-bird;* and *The Poet in the Anteroom* (1794), which brought him under the empress Catharine's notice. In 1801 he was appointed secretary to Galitzin, the governor of Riga, who, after a time, invited him to his country-house at Saratov, where he spent some years in entire leisure. He then returned to St. Petersburg in 1806, where he brought several very successful plays on the stage, *The Milliner's Shop; The Lesson to Ladies*, etc. It was at this time, when about 40 years of age, that he turned his attention to that kind of writing which was to immortalize him. Krylov having translated some of Lafontaine's fables, the poet Dmitriev was so struck with their felicity that he encouraged him to persevere in that line. In 1808 the first collection of his fables (23 in number) appeared, which met with great success. Others followed in 1811 and in 1816. In 1811 he was made member of the Petersburg academy; in 1812, an official in the imperial library; in 1830, councilor of state; and in course of time he was so overwhelmed with honors and pensions that, in 1841, when he resigned his public office, he drew from the state and the imperial treasury the sum of 11,700 roubles. On the occasion of his 70th birthday, homage flowed in on him from all quarters. Krylov died Nov. 21, 1844. Soon afterwards, a national subscription, to which children eagerly contributed their share, was set on foot to raise a monument to his memory; and towards the end of the reign of the emperor Nicholas, his statue in bronze, by Kloth, was placed in the summer garden at St. Petersburg. Many stories are current of his eccentricities. Owing to the genuine national spirit, the joyousness, simplicity, wit, and good-humor that pervade them, his fables are the most popular of Russian books, and many single sentences of them have become proverbs. They are generally the first reading-book put in the hands of children, and thus many thousand copies, both in dear and cheap editions, are in circulation among all classes. He produced in all nearly 200 fables, of which more than three-fourths are original, and the rest are imitations. Translations have been made by Ralston (English, 1871); Einerling (French, 1845); Torney and Löwe (German, 1842 and 1874), etc. There are numerous Italian and French imitations.

KSHATRIYA, the second or military caste in the Brahmanical social system. See Caste.

KUBAN, a territory in s. Russia, at the foot of the Caucasus range of mountains, in Ciscaucasia, 36,251 sq.m.; pop. '71, 672,224. It is the land of the Kuban Cossacks, numbering nearly half a million, who are governed by a lieutenant-general, with capital Yekaterinodar, on the Black sea.

KÛBLAI KHAN (called by the Chinese Chi-Tsou), more properly Khûbilai Khan, the khagan or grand khan of the Mongols, and emperor of China, was the grandson of Genghis Khan through his fourth son, Tuly Khan. Being ordered by his brother Mangû, then khagan of the Mongols, to subjugate the Corea and China, Kûblai Khan, availing himself of an application made by Si-Tsong of the Song dynasty to aid him in expelling the Mantchûs, entered China (1260) with an immense army, drove out these Tartars (or *Kin* dynasty), and took possession of north China. Kûblai Khan, who was an able and energetic prince, adopted the Chinese mode of civilization, and endeared himself to his

subjects by his attention to men of letters, and the favors which he bestowed on the memory of their former renowned monarchs. In 1279 he completed the ruin of the Song dynasty by invading and subduing southern China, and founding a new dynasty—that of the Yuen (the first foreign race of kings that ever ruled in China). From 1259 Kûblai Khan had been the khagan of the Mongols, so that his dominions now extended from the Frozen ocean to the strait of Malacca, and from the Corea to Asia Minor—an extent of territory the like of which had never before, and has never since, been governed by any one monarch. Marco Polo visited his court. Irritated by the failure of an expedition against Japan, he indemnified himself by the conquest of Mantchuria and other districts; but soon after died at Pekin in 1294. The grand dukes of Russia were among his tributaries.

KUENEN, ABRAHAM, D.D. See page 893.

KUEN LUN, KÜN LÜN, or KURKUN, is the name of a great mountain-chain of central Asia, running generally e. and w., lying to the n. of Thibet. The Kuen Lun mountains have been little explored; but some of the passes crossed are 18,000 ft. high, and several of the peaks are not less than 22,000. The main chain begins at about 76° e. long., and is supposed to cease at about 95° east.

KUEN-LUN, or KOOLKOON, MOUNTAINS (*ante*), a mountain range of central Asia, bounding Thibet on the n. and separating it from Yarkand and Khoten. It commences about 35° n. lat. and 75° e. long., and extends in an easterly direction until in 92° e. long. it divides into two ranges, one of which, called Banyan-Kara, diverges s.e.; the other by various names passes through the Chinese provinces of Kan-soo and Shen-soo. The western part is commonly known by the names of Karakorum and Mustag. The numerous elevated branches which it sends forth towards the Indus, form valleys down which immense glaciers descend 10,000 feet. Some of the glaciers of this range are more stupendous than those of the Himalayas.

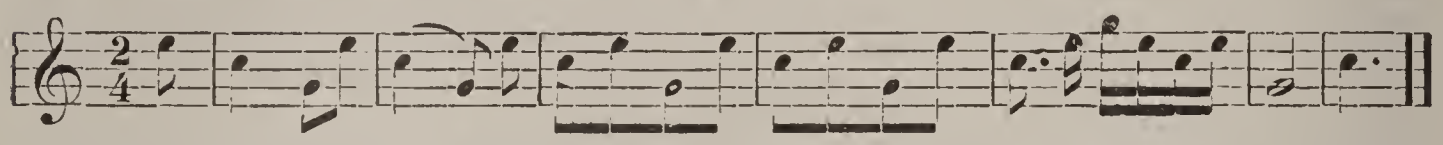
KU'FIC COINS is the name of the earliest Mohammedan coins, inscribed with the Kufic or ancient Arabic character (see the following article). According to Makrizi, the first were struck in the 18th year of the Hedjrah (638 A.D.), under caliph Omar, who, wishing to make Islam entirely independent of foreign, chiefly Byzantine and Persian, influence, even in the province of money, caused "Mohammedan" coins to be struck, in the shape of those Persian and Byzantine ones which had been circulating among his subjects till then, and he caused them to be inscribed with koranic passages. According to other Arabic writers, however (Al-Makin, Soyuti, Ibn Koteiba, etc.), the carliest Kufic money dates from the time of caliph Abd Al-Malek (76 H. =695 A.D.), a period much more probable, considering that no Kufic coins have hitherto been discovered anterior to 77 H. They were first of gold and silver, the former being *dinars* (corrupted from denarius—a name, moreover, wrongly applied), of the value of about 10s. 8d.; the latter, *dirhems* (drachma), worth about 5½d. Not before 116 H. were copper coins, *fels* (follis? obolus?), introduced, and the material for them was taken by the order of caliph Walíd from a colossal bronze statue of an idol. Figures, human or otherwise, are rarely met with on these coins. The legend generally runs either around the margin, or is inclosed by a ring. The oldest dinar—of 77 H.—is preserved in the Milan museum (formerly Cav. Millingen's collection). Next comes the Stockholm academy, with a dinar of 79 H. The oldest dirhem found as yet, dated 82 H., is likewise in Milan, in the museo di Stefano di Mainoni. One of the richest collections of Kufic coins is in the Stockholm academy: owing chiefly to the great numbers found on the shores of the Baltic, brought thither probably by Mohammedan traders in the middle ages. Not before the 7th c. H. were the Kufic characters superseded by the modern Neshki, upon coins; while for books, etc., they had long fallen into disuse. The best authorities on this subject are Makrizi, Adler, the Tychsens, Reiske, De Sacy, Castilioni, Cataneo, Frähn, Lindberg, Pietraszewski.

KUFIC WRITING, an ancient form of Arabic characters, which came into use shortly before Mohammed, and was chiefly current among the inhabitants of northern Arabia, while those of the south-western parts employed the Himjaritic or Mosnad (clipped) character. The Kufic is taken from the old Syriac character (Estrangelo), and is said to have been first introduced by Moramer or Morar ben Morra of Anbar. The first copies of the Koran were written in it, and Kufa, a city in Irak-Arabi (pashalic of Bagdad), being the one which contained the most expert and numerous copyists, the writing itself was called after it. The alphabet was arranged like the Hebrew and Syriac (whence its designation, *ABGaD HeVeS*), and this order, although now superseded by another, is still used for numerical purposes. The Kufic character, of a somewhat clumsy and ungainly shape, began to fall into disuse after about 1000 A.D.; Ebn Morla of Bagdad (d. 938 A.D.) having invented the current or so-called Neshki (*nashak*, to copy) character, which was still further improved by Ebn Bawwab (d. 1031), and which now—deservedly, as one of the prettiest and easiest—reigns supreme in east and west. It is only in MSS. of the Koran, and in title pages, that the Kufic is still employed. A peculiar kind of the Kufic is the so-called Karmatian—of a somewhat more slender shape—in which several inscriptions have been met with both in Arabia, and in Dauphiny, Sicily, etc., and which is also found on a coronation mantle preserved in Nuremberg. The Kufic is written with a style, while for the Neshki, slit reeds are employed. Different kinds of the latter character (in which the alphabet is arranged according to the outward similarity of the

letters) are the Moresque or Maghreb (western), the Diváni (royal—only employed for decrees, etc.), the Tâlík (chiefly used in Persian), the Thsoletki (threefold or very large character), Jakuthi, Riháni, etc.

KUGLER, Franz Theodor, a German historian of art, was b. at Stettin, Jan. 19, 1808, and studied at the university of Berlin. After the completion of a very diversified course of study, he devoted himself to the study of the fine arts. In 1833 he became a professor in Berlin, where he died, Mar. 16, 1858. His most valuable works are a *Handbuch der Geschichte der Malerei, etc.* (Manual of the History of Painting from the Time of Constantine the Great to the Present Day, 1837), which has been translated into English—the part relating to Italian art by sir Charles and lady Eastlake, and that relating to the German, Spanish, French, Dutch, and Flemish schools, under the editorship of sir Edmund Head; and a *Handbuch der Kunstgeschichte* (Manual of the History of Art, etc., 1842). He is also favorably known as a poet and as the author of several dramas.

KUH-HORN, sometimes called Alphorn, is a wind-instrument much used by the herdsmen in the mountainous countries of Germany. It consits of a tube about 3 ft. long, and a little bent, and gradually widening out into a kind of bell, like a bassoon. It is made of wood, or of the bark of the willow, wrought together, and bound by a pitched cord. The sound of the kuh-horn is produced by a mouth-piece like that of a trombone. It has generally only five notes, but extending over nearly two octaves—viz., C, G, C, E, G. With these five notes, the herdsmen often play most interesting melodies, which among the mountains, have an indescribable charm. The following is a specimen:



KUHN, Adalbert, b. in Königsberg, Prussia, 1812; was a pupil at Berlin of Böckh and Bopp, under whom he made great progress in comparative philology. In 1841 he began to teach at the Cologne gymnasium, where he became full professor in 1856. Besides taking high rank in comparative philology he was one of the founders of the science of comparative mythology. He has written several books and still conducts periodicals devoted to his favorite subjects.

KÜHNER, Raphael, 1802–78; b. Gotha; was educated at Göttingen; in 1824 began to teach at the Hanover lyceum. He has written several Greek and Latin text-books, some of which have been translated into English.

KÜHNÖL, or KUEHNOEL, Christian Gottlieb, 1768–1841; b. Leipsic; lectured on biblical exegesis and hermeneutics at the age of 20 in the university of Leipsic; was professor of philosophy in 1790; and in 1809, of theology at Giessen. He was the author of several able works, among which were *Messianic Prophecies; Notes on the New Testament; The Psalms in Meter; Commentary on the Historical Books of the New Testament,* in 4 vols. The last especially was very popular, and republished in England with the Greek text.

KU'ILENBURG. See Culenborg

KUKAWA, an important t. of central Africa, capital of Bornu, is situated in a level district on the western shore of lake Tsad, in lat. 12° 55′ n., and long. 13° 26′ west. A great fair or market is held here weekly. From 12,000 to 15,000 people are often crowded together in the market place.

KU-KLUX KLAN, or Ku-klux, the title of a secret association which existed in the southern states from 1866 to 1872, and which terrorized that section of the country during the period in question. It was first made known as an active agency in Tennessee, in 1867, when the governor of the state, William G. Brownlow, called upon the U. S. military authorities to suppress violence and public disturbances in the state, which were traced to this organization. The history of the Ku-klux shows that at the close of the war various societies of a political character were formed in the states of Alabama, Arkansas, Georgia, Kentucky, Mississippi, North and South Carolina, Tennessee, and Texas, under the names of the knights of the white camellia, white brotherhood, constitutional union guards, pale-faces, invisible empires, invisible circle, etc., all of which were eventually lost in the broader scope and more powerful and permanent influence of the Ku-klux klan. From the evidence afforded it would appear that the origin of these secret societies, and more particularly of the one we are specially considering, is to be found in the general dislocation of political and social interests in the southern states, consequent to the aggressive influence of a long and devastating condition of warfare. In explanation of their foundation, ex-confederates claim that they were preceded by the organization of loyal leagues, which, as they allege, were formed among the negroes in the south through the efforts of "carpet-baggers," so-called, radical leaders intriguing in the interest of the perpetuation of the power of the republican party in the southern states. It is also claimed in behalf of the southern people that, through the action of the 14th and 15th amendments to the constitution of the United States, the southern white population was endangered in its homes and its social relations, the

emancipated blacks being considered in the light of a race angered by long and bitter servitude, now armed and equipped by law and public sentiment, and only waiting opportunity for an uprising and to grasp the balance of power among the high-spirited people to whom they had been slaves for more than two centuries. This is the southern explanation of the rise of the Ku-klux. Whatever may be the measure of truth contained in it, this in no wise militates against the justness of public condemnation of its acts.—By joint resolution, dated April 20, 1871, the two houses of congress ordered an investigation into the condition of affairs in the states recently in a condition of insurrection. For three years the press had been filled with detailed statements describing acts of atrocity attributed to the secret and terrible Ku-klux klan, which rivaled the worst instances recorded against the Spanish domination in the Netherlands and the bloody scenes of the French revolution. In every southern state except Virginia, West Virginia, Delaware, Maryland, and Florida, assassinations of negroes and white republicans were of daily occurrence. The gift of suffrage to the colored man had been nullified in its outcome as a political influence through the system of terrorizing which utterly precluded the free suffrage of the emancipated blacks. Besides instances of special massacres covering large numbers, and of which there occurred many in South Carolina, Louisiana, Mississippi, Texas, and Tennessee, the daily and nightly assassinations, whippings, burnings, and other outrages were innumerable, and were never recorded. In reporting the state of society in Texas, the evidence given is to the effect that the negroes were murdered with such frequency that there was no possibility of keeping an accurate record of the details. On the basis of reports of this nature and stimulated, doubtless, by the intense public feeling in the north, created by the gradually spreading conviction of the lamentable deficiency in the power of the law as applied in the south, congress, through its committee, proceeded to the investigation ordered by the joint resolution to which we have already referred. The result of this investigation appears in the 12 octavo volumes reporting the testimony taken and published among the official documents (senate) of the year 1872. An immense mass of evidence displays the nature and acts of the Ku-klux, and fully justifies the title "conspiracy," which congress bestowed upon that organization. While the Ku-klux may have originated for a minor purpose, it is difficult to believe that this tremendous association of men sworn to fidelity; having its ramifications in every southern state, and the power of life and death in most of them; with a ritual, oath, grips, pass-words, and all the other secret and systematic machinery necessary to the carrying out of the most hidden and dangerous purposes—it is difficult to believe that the real motive and intention of the order were not the subversion of the government of the United States, and the rehabilitation of the leaders of the rebellion. To this end, the negation of the suffrage in the south, and the efforts to defeat reconstruction, may reasonably be supposed to have tended. And whatever diverse opinions may be held regarding the good sense, judgment, and patriotism displayed in the reconstruction acts and the methods adopted to carry them into effect, it is impossible to view without the severest censure the nature of the opposition to them, as conducted by a bloody and revengeful association of cruel and implacable men, crazed by the facility with which murder and incendiarism could be made to do duty for what its members chose to consider retributive justice Following is the oath of the Ku-klux klan, as it was offered in evidence before the investigating committee of congress: "I (name), before the great immaculate Judge of heaven and earth, and upon the holy evangelists of Almighty God, do, of my own free will and accord, subscribe to the following sacred, binding obligation. I. I am on the side of justice and humanity and constitutional liberty, as bequeathed to us by our forefathers. II. I reject and oppose the principles of the radical party. III. I pledge aid to a brother of the Ku-klux klan in sickness, distress, or pecuniary embarrassment. Females, friends, widows, and their households shall be the special object of my care and protection. IV. Should I ever divulge, or cause to be divulged, any of the secrets of this order, or any of the foregoing obligations, I must meet with the fearful punishment of death and traitors' doom, which is death, death, death, at the hands of the brethren." This sufficiently theatrical obligation becomes impressive when one reflects that its various sections were carried out with absolute rigor, and that disobedience of the orders of the chief of a klan was actually visited with instant death. Thus were the customs of the *carbonari* paralleled among so prosaic and conventional a people as the Americans so late as 1871. The members of the order were obliged to deny their membership, even when answering as witnesses in a court of law, and were obligated to clear each other by their testimony in such cases or when acting as jurors. The Ku-klux gradually died out as an active organization after the investigation of 1871; and although certain of their methods continued to obtain during the progress of elections in the south, the return to sounder sense and better feeling on the part of the people of that section, and the improving condition of the relations between the north and the south, gradually died away with the passions in which the organization originated. It is reported that there were at one time 550,000 members of the Ku-klux klan in the south, of which number 40,000 are said to have been in Tennessee.

KU'LA, a t. of Austria, in the Servian Woiwodschaft, on the Franzens or Bacs canal, 26 m. n.w. of Neusatz. Pop. '80, 8,102.

KUL'DJA, Kul'ja, Kool'djа, Kul'dsha, or Gul'dscha, a province in the government of Turkistan; 25,500 sq.m.; pop. '71, 114,337; was formerly a part of Soongaria, the extreme n.w. province of China, which country conquered it in 1754 from the Kalmucks. Some years ago this province declared its independence of China under a native sultan, but in 1871 the Russian government, by agreement with China, annexed Kuldja to its dominions, and this remained its status until 1879, the czar having promised to restore it to the Chinese whenever the latter should occupy the province with a suffi cient force to keep it in order and subjection, as against the wild tribes that inhabited it. The defeat of Yakoob Beg afforded to China the desired opportunity to regain this territory, and a demand was made upon the czar for the performance of his promise. A Russian commission was accordingly appointed, and in Sept., 1879, this commission reported a treaty, which was accepted by China. This treaty restored to the latter power four-fifths of the province of Kuldja, the remaining strip of territory being retained by Russia to afford a foot-hold and hold a certain degree of influence in that country.

KUL'DJA, also called Ili, an important t., capital of a large territory in Dzungaria, central Asia, near the frontiers of Russia and China. It stands on the right bank of the Ili, a considerable river, which, rising in the Tian-Shan mountains, flows westward into lake Balkash, after a course of about 300 miles. The town, which till lately had a very brisk and growing trade (the imports in 1873 being valued at upwards of £30,000) has still a population of near 50,000, composed of Dzungarians, Bokharans, Tajiks, and Chinese. The region in which Kuldja stands revolted against China in 1865, and was occupied and taken possession of by Russia in 1871. The demands of China for the restoration of Kuldja were little heeded by Russia till 1879.

KULM, a small village of Bohemia, 16 m. n.n.w. of Leitmeritz, was the scene of two bloody conflicts between the French and allies on Aug. 29 and 30, 1813. The French, numbering 30,000 men, were commanded by gen. Vandamme; the Russians, during the first day's conflict, were 17,000, and were commanded by gen. Ostermann-Tolstoi. During the night the latter were heavily reinforced, and on the second day Barclay de Tolly assumed the command with 60,000 troops. The result was the complete wreck of the French army, which lost in these two days little short of 20,000 men, while the allies did not lose half of that number.

KULM, or Culm, a c. of w. Prussia; pop. '71, 8,455; one of the four dioceses into which Prussia was divided early in the 13th century. From 1466 to 1772 it formed a part of Poland, but on the first partition of the latter kingdom was restored to Prussia. Its trade is sufficient for the necessities of the people, without being important. Its principal institutions are educational, and include an Episcopal seminary, a cadet school, and a Roman Catholic gymnasium or high school.

KUM, or Koom, the ancient Choana, is supposed to date back to the 9th c., when it was an independent Arabic principality. It is situated about 80 m. from Teheran, in Persia, on the high road through Ispahan and Shiraz to Bushire, on the Persian gulf; pop. about 8,000. Formerly it was a magnificent city, containing 100,000 inhabitants, but in 1722 it was destroyed during the Afghan invasion, which resulted in the conquest of Persia and its government by the Afghans, until they were expelled by Nadir Shah, 7 years later. The tomb of Fatima, the only daughter of Mohammed, is still shown at Kum. There is considerable local trade by the numerous bazaars, but the manufactures of the place are unimportant.

KUMA'NIA. See Cumania.

KUMAON' is a district of British India, in the Kumaon division of the North-west Provinces, in lat. 29° to 31° n., and long. 78° to 81° east. It lies chiefly on the s. slope of the Himalayas, comprising upwards of 30 summits in that range, which vary in altitude from about 18,000 ft. to nearly 26,000. With the exception of a belt on its southern frontier, which is from 2 m. to 15 m. broad, the whole country is one mass of mountains and forests. It contains mines of gold, copper, and lead, which, however, have never yet been profitably worked. Throughout the southern belt above mentioned, it produces, generally in two crops a year, wheat, barley, oats, millet, peas, beans, etc., with rice, cotton, indigo, sugar, ginger, tuemeric, etc. More lately, too, Kumaon has become the rival in India of Assam for the cultivation of the tea-plant. The climate is unhealthy. Area, 6,000 sq.m.; pop. '72, 433,314. The principal town is Almora (6,260). The *division* of Kumaon has an area of 115,000 sq.m.; pop. 743,602. Kumaon is also spelt *Kamaun.*

KUMÂRASAMBHAVA is the name of one of the most celebrated poems of the Hindus. Its reputed author is Kâlidâsa (see Kâlidâsa), and its subject is the legendary history connected with the birth of Kumâra, or Kârttikeya, the Hindu god of war. See Kârttikeya. It consists of 22 cantos, but only 8 have hitherto been published in the original Sanskrit. The first seven have been elegantly rendered in English verse by Mr. R. T. H. Griffith, principal of the Benares government college.

KUMBUK' (*Pentaptera tomentosa*), a tree of the natural order *combretaceæ*, a native of the East Indies. It is a noble tree, and produces durable timber. Sir James E. Tennent describes a kumbuk tree in Ceylon, 45 ft. in circumference, close to the ground, and 21

ft. at 12 ft. above the ground, which serves as a landmark for boatmen, towering high above forests of cocoa-palm, and discernible at a distance of 20 miles. The bark of the kumbuk yields a black dye, and contains so much lime that its ashes are used as lime for chewing with betel.

KUMISS, or KUMISH. See KOUMISS, *ante.*

KUMMEL. See LIQUEUR.

KUMQUAT (*Citrus Japonica*), a small species of orange, a native of China and Japan, and much cultivated in these countries. It has been introduced into Australia. It endures more frost than any other of the genus, and will probably prove a valuable acquisition to many parts of Europe and America. The plant is a shrub sometimes 6 ft. high, but in cultivation it is not allowed to exceed the height of a gooseberry-bush. The fruit is oval, and about the size of a large gooseberry; the rind is sweet, and the juice acid. It is very delicious and refreshing. The Chinese make an excellent sweetmeat by preserving it in sugar.

KU'NERSDORF, a village of Brandenburg, in Prussia, nearly 4½ m. n.e. of Frankfort-on-the-Oder, was the scene of one of the most remarkable battles of the seven years' war, fought on Aug. 12, 1759, in which Frederick the great was completely defeated by a combined attack of Russians under Soltikof and Austrians under Laudon. The loss on the Prussian side was 26,000 men, with almost all their artillery and baggage, while their opponents lost 24,000 men.

KUNG, PRINCE, b. China, 1835; a member of the Chinese imperial family, chief of the state department, and a member of the imperial ministry, uncle of the late emperor Foung-chê, and regent of the empire on the accession of the latter in 1861. He is among the party of progress in China, and has advocated freedom of intercourse with foreign nations, and the adoption of foreign customs and inventions. To his influence chiefly was owing the treaty of peace with the French and English after the Peï-Ho affair in 1860, and likewise the appointment of Anson Burlingame, a citizen of the United States, as envoy and ambassador to the Christian powers in 1868. Made prime minister, he safely conducted China through the Formosa difficulty with Japan, concluding a treaty of peace with that country in 1874.

KUNG-CHOW-FOO. See HAINAN.

KUNGUR', a t. in the government of Perm, Russia, and 1416 m. from St. Petersburg, is renowned for its tanneries, in which the best quality of Russia leather is produced. In the neighborhood are several large iron-works. Pop. '80, 10,804.

KUNIGUN'DÉ, SAINT, wife of the emperor Henry II., was the daughter of count Siegfried of Luxemburg. Her husband, duke Henry of Bavaria, was crowned king of the Germans in 1002, and emperor in 1014. Her reputation having been unjustly assailed, she vindicated herself by walking barefooted over hot plowshares. After the death of her husband in 1024, she retired into the convent of Kaufungen, near Cassel, which she had founded, spent the remainder of her days in pious works, and died on Mar. 3, 1040. Pope Innocent III. gave her a a place amongst the saints in 1200.

KUN'NOJ, or KUNNOUJ, a decayed t. of British India, capital of the pergunnah of the same name, in the district of Furrackabad, 65 m. n.w. of Lucknow; on the Kali Nuddi river, about 3 m. from its junction with the Ganges. At present the place is little more than an expanse of ruins, whole mountains of which meet the eye in every direction, upon a space of ground much larger, it is said, than the site of London. The greatest part of the standing buildings are uninhabited, and tottering to decay. The few poor people now in the place live in mud huts built up against the old walls. The present town is about a mile long, and half a mile broad, with a ruinous fort of no great antiquity. The most remarkable buildings are two handsome Mohammedan mausoleums. Kunnoj was formerly one of the greatest of Indian cities; and according to some, ranks second in respect of antiquity. One authority considers the town to have existed before the first introduction of Brahmanism from the west. Until about the 12th c. A.D., it continued to be the chief city of India; but in 1194 it was attacked by Shahabuddin Mohammed, sovereign of Ghoor, who defeated the king of Kunnoj and overthrew that monarchy. After this the history of the place consists only of a succession of disasters. In 1871 this once celebrated place contained only 17,577 inhabitants, living in great indigence.

KUNTH, KARL SIGISMUND, 1788–1850; b. Leipsic; educated in Berlin, through the influence of Alexander von Humboldt, He devoted himself to the study of botany, had charge of the botanical garden in Berlin, and edited Humboldt and Bonpland's *Voyages aux Régions Équinoctiales,* besides assisting in the arrangement and classification of baron Humboldt's splendid herbarium of 5,000 specimens.

KUNZE, JOHN CHRISTOPHER, D.D., b. in Saxony about 1740; was educated at Leipsic and Halle, and became a minister of the Lutheran church. In 1770 he emigrated to Philadelphia to act as associate pastor of the German churches there. During his residence in that city he was for several years a professor in the university of Pennsylvania. In 1784 he accepted a pastoral call to New York, where he resided for the remainder of

his life. He added to his pastoral labors those of professor of oriental literature in Columbia college. He was one of the best Hebrew scholars of his time. Among his published works are a *History of the Christian Religion and of the Lutheran Church*, a *Catechism and Liturgy*, and a Lutheran *Hymn and Prayer Book*.

KUO'PIO, a *län* or government of Finland; 16,498 sq.m.; pop. 238,280. It is comprised in an extensive plain, containing a large number of lakes, and lying immediately w. of Russia; lat. 63° n., long. 27° east.

KUP'FERSCHIEFER, one of the series of strata which make up the permian rocks. It consists of beds of dark shale with copper ore (hence the name), and containing beautifully preserved fish, of species nearly allied to those of the coal measures.

KUPPERWUNJ', a fortified t. of British India, in the presidency of Bombay, 32 m. e. of Ahmedabad, on a tributary of the river Saburmuttee. It has some trade, and manutures of soap and pottery. Pop. 13,000.

KU'RA, or KUR (anc. Cyrus), the principal river of the Caucasus, rises in the Sahanlu chain, and after a south-eastern course of 535 m. falls into the Caspian sea by several shallow channels, about 60 m. n. of the Persian boundary. Its chief tributaries are the Aras (anc. *Araxes*), the Alazan, and the Yora. The Kura has so rapid a course and changes its channel so frequently that to bridge it is almost impossible.

KURDISTAN' ("the country of the Kurds"), an extensive region of western Asia, running n.w. and s.e., between lat. 34° to 40° n., and long. 40° to 48° e., bounded on the n.e. side by Armenia, Azerbijan, and Irak-Ajemi, and on the s.w. by the Tigris and Aljezira, belongs to the Turkish and Persian monarchies, chiefly to the former, and contains about 50,000 sq.m., with a population amounting, according to Chesney's estimate, to 3,000,000—doubtless a very great exaggeration, though we have no means of disproving it. The country, with the exception of the tract bordering on the Tigris, is very mountainous, some of the peaks being nearly 13,000 ft. above the sea-level; these mountain-ranges divide the surface of the country into fertile valleys and extensive table-lands. The southern part is for the most part low and flat, parched in summer, and verdant during the wet season. The country is traversed by the Euphrates, Tigris, Zab-Ala, Zab-Asfal, and Diyala or Shirvan, and contains several lakes, the chief of which are Van and Urumiah. Four-fifths of the inhabitants are Kurds (anc. *Carduchi* and *Gordyaei*), a race partly nomad and partly agricultural, who occupy themselves chiefly, however, with the breeding of cattle, sheep, goats, and horses, A great trade is carried on with Turkey and Persia, especially in horses, the Kurdish breed being so famed for its spirit and endurance as to be almost exclusively employed by the Turkish and Persian cavalry. The settled portion of the population consists of Kurds, Turks, and Persians, who are engaged in agricultural employments. A remarkable product of this country is a substance found on the leaves of the tamarisk and other shrubs, which closely corresponds to the description given of "manna" in the Old Testament, and is supposed to result, like oak-galls, from the puncture of the leaf by an insect. The country is deficient in mineral wealth. The inhabitants, with the exception of the Nestorians (q.v.), who inhabit the valley of the Tigris, profess a debased form of Mohammedanism. The chief towns in Turkish Kurdistan are Bitlis (q.v.), Van, Urumia, Mardin (anc. *Mardein*), Mush, Korkuk, Diarbekir, Malatia, and Marash. The Persian portion of Kurdistan does not form a distinct province, but is included in Azerbijan, Ardelan, and Irak-Ajemi.

KU'RILE ISLANDS, a line of islands in the north Pacific ocean, belonging to Japan, extend between the s. extremity of Kamchatka and the Japanese island of Yezo. The islands are 22 in number, 19 of which were possessed by Russia until 1875, when they were ceded to Japan in exchange for the half of Saghalien. Area about 3,850 sq.m.; pop. between 200 and 300. Since 1781 no tribute has been collected here. The Kurile islands are all volcanic. The vegetation is poor; the principal productions being the furs of foxes, wolves, seals, and beavers. Navigation near the islands is difficult.

KU'RILE ISLANDS (*ante*) Japanese name CHI-SHIMA (thousand islands). The name Kurile is Russian, from *kuril*, "to smoke," from the active volcanoes seen from Kamtchatka. Those belonging to Russia were transferred to Japan in 1874 in exchange for the southern half of Saghalien, held by Japan. Immense numbers of seals are annually shot and skinned for their fur by Americans in schooners off these islands.

KU'RISCHES HAFF, an extensive lagoon, separated from the Baltic sea by a ridge of sand from 1 to 2 m. in width. It extends nearly 60 m. along the coast of east Prussia from Labiau to Memel, where it enters the Baltic by the "Memel deeps," a channel about 1000 ft. wide and 12 ft. deep. Its greatest breadth at the southern extremity is about 28 m., but its average breadth is not above 14 miles. The waters of the Kurischés Haff are fresh. Its depth is very variable, and hence its navigation, accomplished by means of large flat boats, is both difficult and dangerous. The belt of land is called the "Kurische Neerung," and has a few villages upon it.

KURNAL', a t. of British India, in the district of the same name, in the Punjab, on the right bank of the Delhi canal, 78 m. n.e. of Delhi city. The town is surrounded by a ruinous wall, and is excessively filthy. It has, however, a handsome mosque. Adjoining the town is a military cantonment. Pop. '68, 29,000.

KURNUL', the chief t. of a district of the same name, in the presidency of Madras, in lat. 15° 50′ n., and long. 78° 5′ east. Pop. estimated at 20,000. The district itself—separated on the n. by the Krishna from the Nizam's dominions—contains 7,470 sq.m., and in 1871 had a pop. of 956,068. The country possesses considerable works for the purposes of irrigation.

KURO'DA KIYOTA'KU, b. in Satsuma, Japan, and took an active part in the war of 1868, and was intrusted with the task of finishing the war by subduing the rebels in Yezo. After some of the fiercest fighting on record between iron-clads and forts and modern war-vessels, Kuroda secured the surrender of Enomoto, the leader, by a personal pledge that no harm should befall him. Though the government condemned Enomoto to death, Kuroda secured his pardon after three years' imprisonment by the assurance, solemnly given, that if harm befell Enomoto, he (Kuroda) would open his bowels by harri-kari. After the war Kuroda was made chief of the Kai-Taku-Shi, a department organized to colonize and develop the resources of Yezo. In 1871 Kuroda visited Europe and America, and in Washington secured the formation of the staff of American geologists and scientific men who have done more for the development of northern Japan and for our scientific knowledge of Yezo than anything before attempted. Horace Capron, Thomas Antisell, M.D., Stuart Eldredge, M.D., maj. Warfield, Henry S. Munroe, James R. Wasson, Benjamin S. Lyman, lieut. Murray S. Day, U.S.N., and others have served under the Kai-Taku-Shi, and their papers in scientific periodicals are rich mines of exact information on special topics. Out of this enterprise grew up the geological survey of Japan, now being carried on by prof. B. S. Lyman. In 1874 Kuroda was made imperial counselor, and in 1876 went to Corea in command of the treaty-making expedition. He has greatly assisted in advancing the cause of female education in Japan.

KURO SHIWO (Black Current). The gulf stream of the Pacific which rises near Formosa, as the westward-northern branch of the north-equatorial current of the Pacific, and flows upward past Kiushiu, Shikoku, and Hondo, islands of Japan, and past the Kurile chain; thence splitting into two branches, the smaller stream passes up through Behring's straits, the main volume scouring the Aleutian or Fox islands, sending a loop around the Alaskan coast; and thence bending southward to California, whence it bends westward past the Sandwich islands, and pursues its way past Formosa and Japan again. The color of the Kuro is of a deep blue, and its warm waters move at the rate of 3 m. an hour. In addition to its scientific and climatic significance and influence on Japan, Alaska, and California, the problem of the origin of the races of America may receive new light through a study of the Japan current. A tree or junk, set in the Japan current, if left to float, will strand on Alaska or California, or even upon the Hawaii islands. For 20 centuries Japanese fishing-boats have been blown or swept into the Kuro Shiwo, and the arrival or stranding of some of them on the coasts of America is not to be doubted. From 1872 to 1876 a record of no less than 49 Japanese junks wrecked, met with or seen on American and Hawaiian shores was made out, and read by Mr. Chas. Wolcott Brooks before the California academy of sciences, Mar. 1, 1875. Further research has disclosed a much larger number of waifs, all Japanese. See the summary in "The Mikado's Empire," p. 579. The similarity of the flora and fauna of the w. coast of North America will be understood from a further study of the Kuro Shiwo.

KURRA'CHI, the only port in Sinde for sea-going ships, lies about 12 m. n.w. of the most westerly mouth of the Indus, in lat. 24° 51′ n., and long. 67° 2′ east. It was taken by the British in 1839, and has since advanced with rapid strides in the path of improvement. Pop. '72, 53,526. As the mouth of the Indus is barred by sand-banks, Kurrachi is virtually the terminus for the traffic on that river. The anchorage is exposed, but harbor works, docks, and other improvements are in progress. It is connected by the Sinde railway with Hyderabad, thence, by means of the Indus Steam Flotilla company's vessels, with Sakar and Mûltan, and from the latter place by the Punjab railway with Lahore, Amritsir, Peshawur, etc. Since Jan., 1860, it has had direct communication, by submarine telegraph, with Muscat and Alexandria. The exports of Kurrachi are camels, fishes, hides, tallow, ghee, oil, bark, salt, indigo, cotton, and grain; and the imports: metals, hardware, silk, cotton, and woolen goods. Kurrachi has an active inland trade with Cashmere, Turkistan, Afghanistan, and Thibet. It contains an English church and school.

KURSK, one of the governments in the s. of Great Russia, lying s. of Orel, contains 17,873 sq.m., the most of which is arable. The province is watered by feeders of the Dnieper and of the Don. The soil being very fertile, large crops of corn are raised, and even in scanty years, Kursk can supply the neighboring provinces. The pop. in 1880 was 2,239,397, of whom the greater part are employed in farm-tillage, though a large number devote themselves to cattle-breeding and orchard-gardening. The principal manufactures are spirits, leather, soap, and saltpeter, and the products are largely exported. Hemp and horses also form important items in the export trade of the province.

KURSK, the chief t. of the government of that name, on the right bank of the Seim, a branch of the Dezna, dates from the 9th century. It suffered considerably from the

ravages of the Tartars and Poles, but is still a flourishing town, numbering (1880) 31,754 inhabitants, and carrying on a considerable trade in tallow-melting, rope-making, and tanning. Kursk is also celebrated for its orchards, the fruit of which is in great request. Near the town, a fair is held in July, when more than £1,000,000 worth of commodities are disposed of, the chief being manufactured silk and woolen fabrics, sugar, tea, horses, etc.

KURTZ, BENJAMIN, D.D., LL.D., 1795–1865; b. Penn.; was for several years a teacher of ancient and modern languages; studied theology with the rev. Dr. George Lochman; was licensed to preach in 1815 by the Lutheran synod of Pennsylvania; was assistant to his uncle, rev. Dr. J. D. Kurtz, at Baltimore; pastor at Hagerstown and Chambersburg; became editor of the *Lutheran Observer* at Baltimore in 1833, which he conducted with ability for 20 years. Dr. Kurtz took an active part in founding the Lutheran theological seminary at Gettysburg; was the chief founder of the *missionary institute* at Selin's Grove, Penn., and published several theological works.

KURTZ, JOHN NICHOLAS, 1720–94; b. in Germany; studied theology at Giessen and Halle, and in 1745 came as a missionary to the Germans of Pennsylvania and was the first Lutheran minister ordained in the American colonies. He was stationed successively at New Hanover, Tulpehocken, Germantown, and York, but spent much of his time in labors among the frontier settlements, where his life was in constant peril from hostile Indians. During the war of the revolution his patriotism was conspicuous. Died in Baltimore.

KURU, a name of great celebrity in the ancient or legendary history of India. See MAHÂBHÂRATA.

KUSH, THE HINDOO. See HINDU KUSH.

KUSKOQUIM RIVER rises in s. central Alaska, in the Chigmit mountains, and flowing s.w., empties into a bay of Behring's sea of the same name. It is more than 500 m. in length, unexplored, and drains a country inhabited only by Indian tribes and Esquimaux.

KÜSSNACHT, a village of Switzerland, in the canton of Schwytz, on an arm of lake Lucerne, at the foot of the Rigi. It is associated with the myth of William Tell. Pop. 2,500.

KUSTEND'JI, or KISTENDJEK, a fortified seaport of Roumania, in the Dobrudja, on the Black sea, 40 m. e. of Rassova, at the termination of Trajan's wall, of which some traces may still be seen. It has some trade in corn, but the harbor is exposed and ill-adapted for extensive commerce. The town is connected by rail with Chernavoda, on the Danube.

KÜS'TENLAND (i.e. *Coast Districts*, Ital. *Litorale*), a crown-land of Austria, consisting of the co. of Görz and Gradiska, markgrafdom of Istria, and the town of Trieste with its territory. It lies between the crown-land of Carniola on the n.e. and the gulf of Venice on the s.w. Area, 3,048 sq.m.; pop. '80, 647,934. Together with the crown-lands of Carinthia and Carniola, it constituted in former times the kingdom of Illyria. The surface is mountainous. The chief rivers are the Isonzo and the Quieto. The soil in general is fruitful; figs ripen without almost any cultivation, and wine is extensively made. In the mountainous districts in the n. and n.e. the breeding of cattle is the chief branch of industry. Commerce is extensively carried on at the various seaports.

KÜSTRIN', a t. of Prussia, and a fortress of the third rank, is situated in the midst of extensive morasses, at the confluence of the Warthe with the Oder, 20 m. n. of Frankfort. Pop. '80, 14,069.

KUTAI'EH, KUTAHIA, or KUTAYA (the ancient *Cotiæum*), an important t. of Asiatic Turkey, in Anatolia, capital of the eyalet in which it is situated, stands 70 m. s.e. of Brusa, on the Pursuk, a tributary of the Sakaria—the ancient Sangarius. It is said to have a good trade, and a population of about 50,000.

KUTAIS'. See TRANSCAUCASIA.

KUT'TENBERG, a mining t. of Bohemia, about 40 m. e.s.e. of Prague. Here, in 1237, silver was found, and the silver mines were first worked. The first silver *groschen* were struck here in 1300. The silver-mines have not been worked for about 300 years, the chief mineral products of the district being now copper and lead. Cotton-spinning, cotton-printing, and bleaching are also carried on. Pop. '80, 13,154.

KUTUSOW, MICHAEL LAURIONOWITSCH GOLENITSCHEW, Prince of Smolenskoi. a Russian field-marshal, b. in 1745, early entered the Russian army, and in 1787 was appointed gov.gen. of the Crimea. He distinguished himself in the Turkish war, and after various other services, was appointed in 1805 to the command of the first *corps d'armée* against the French. On Nov. 18 and 19 of that year, he was victorious over marshal Mortier at Dürenstein. He was second in command of the allied army, of which the emperor Alexander himself was commander-in-chief, at Austerlitz. In 1811–12 he commanded the Russian army in the war against the Turks, and notwithstanding his advanced age, he succeeded Barclay de Tolly in 1812 as commander-in-chief of the army against the French, and obtained a great victory over Davout and Ney at Smolensk. He carried on the campaign to its successful termination; but his strength was exhausted, and he died at Bunzlau April 28, 1813.

KÜTZING, Friedrich Traugott, b. at Ritteburg, in Thüringen, 1807; studied at Halle, and visited s. Europe, especially exploring the flora of the Adriatic coasts. In 1835 he was appointed professor of natural science at Nordhausen. His researches have led him to the same fundamental ideas as those of Darwin. His works are highly esteemed.

KUVERA, the Hindu Plutus, or god of wealth. He owes his name—which literally means "having a wretched (*ku*) body (*vera*)"—to the deformities with which he is invested by Hindu mythology. He is represented as having three heads, three legs, and but eight teeth; his eyes are green, and in the place of one he has a yellow mark; he wears an earring, but only in one ear; and though he is properly of a black color, his belly is whitened by a leprous taint. He is seated in a car (*pushpaka*), which is drawn by hobgoblins. His residence, *Alakâ*, is situated in the mines of mount Kailâsa, and he is attended by the Yakshas, Mâyus, Kinnaras, and other imps, anxiously guarding the entrance to his garden, Chaitraratha, the abode of all riches. Nine treasures—apparently precious gems—are especially intrusted to his care.—His wife is a hobgoblin, *Yakshî*, or *Yakshinî*, and their children are two sons and a daughter. As one of the divinities that preside over the regions, he is considered also to be the protector of the north.

KUYP. See Cuyp, *ante*.

KWANG-SI, or Quangsee, a province of China, between lat. 22° and 26° n. and long. 105° and 112° 30′ e.; pop. 7,313,895. The surface is mostly mountainous. The principal products are cassia, grain, metals, and gems. Nearly all its rivers unite with the Choo-Kiang, which flows eastward and ultimately becomes the Canton river.

KWANG-TUNG, or Quangtung, the most south-easterly province of China, contains the important ports of Macao, Canton, and Hong-Kong. It lies on the gulf of Tonquin and the China sea, contains a pop. of more than 19,000,000, and covers an area of 79,456 sq. miles. While the country bordering on the sea-coast is level and productive, the northern part is mountainous. Sugar, tea, rice, tobacco, and fruits are grown in large quantities, and the manufacture of silk, cotton, and lacquered ware is extensive. The rivers of this province are generally used for traffic, with the aid of portages; but, with one or two exceptions, are not navigable for steam vessels.

KWEI-CHU, or Queichow, a province in the s.w. part of China; about 65,000 sq.m.; pop. 5,228,219. The capital is Kwei-Yung. It is a rough, mountainous region, with mines of copper, iron, lead, and quicksilver.

KWICKPAK RIVER, the name of one of the outlets or delta arms of the Yukon, the great river of Alaska. It is wide and shallow, and has a length of about 50 miles. The Russians often give this name to the Yukon itself, which rises in British Columbia, enters Alaska near the Arctic circle, and flows with a s.w. trend across the entire width of the territory, more than 1800 m., into Behring sea.

KYANITE (Cyanite, *ante*), called also *disthene*, *rhœtizite*, *monrolite*, a native silicate of alumina, crystallizing generally in long-bladed forms, though sometimes in short prisms, of the triclinic system; hardness 6 to 7¼; luster vitreous and pearly; color blue, white, gray, green, and black; translucent, transparent; but the most common color is pale blue, deeper along the middle of the prisms. Analysis of a specimen from Norway by Arfvedson gave: silica 36.4, alumina 63.8 = 100.2. A specimen from St. Gothard, by the same analyst gave: silica 34.33, alumina 64.89 = 99.22; another from the same mountain gave: silica 36.9, alumina 64.7 = 101.6. Another specimen from the Tyrol, analyzed by Erdmann, gave: silica 37.36, alumina 62.09, iron 0.71 = 100.16. A specimen from Lincoln co., N. C., analyzed by Smith and Brush, gave: silica 37.6, alumina 60.4, iron 1.6. This mineral occurs principally in gneiss and mica slate. Transparent crystals are found at St. Gothard in the Tyrol; in Bohemia; at Pontivy, France; and Villa Rica, S. A. Kyanite also occurs in Massachusetts, at Chesterfield, associated with garnet, in mica slate; at Litchfield, Conn., in large rolled masses with corundum and massive apatite: in New York at Monroe, Orange co.; in Pennsylvania, in fine specimens on the Schuylkill road near Philadelphia, and near the Schuylkill on the Blue Ridge road, back of Robin Hood Tavern; in Maryland at Scott's Mills 18 m. n. of Baltimore; in North Carolina near Crowder's mountain; and in short crystals at Bellows Falls, Vt. A black variety, associated with rutile, is found in North Carolina. Fine specimens of kyanite are used as gems, and have some resemblance to sapphire (q.v.).

KYANIZING, the most efficacious method of preserving ships from dry rot (q.v.), by injecting into the pores of the wood a solution of corrosive sublimate, was invented by John H. Kyan, who was born in Dublin, Nov. 27, 1774, and died in 1850.

KYLE, a district of Ayrshire (q.v.).

KY'RIÉ ELEI'SON (Gr. *Kyrie eleëson*, Lord have mercy), a form of prayer which occurs in all the ancient Greek liturgies, and is retained in the Roman Catholic mass. It follows immediately after the introit, and forms the introduction to the hymn of praise, "Gloria in excelsis Deo" (Glory to God on high). The retention of the Greek language in this prayer is one of many evidences of the predominance of the Greek element in the early Roman church (Milman's *Latin Christianity*, i. 10). The same peculiarity occurs in a few others of the Roman services, especially those of the holy week.

KYTHUL, or KAITHAL, a t. in the Delhi division of the Punjab, about 1000 m. to the n.w. of Calcutta. In 1868 the pop. was 14,940. It is substantially built of brick, having a lofty palace, which looks down from a beautiful grove on a spacious sheet of water. It was only in 1843 that the territory fell to the English East India company, having lapsed through the failure of heirs. It then comprised more than 500 villages, with a revenue of £44,000.

L

L, THE twelfth letter of our alphabet, was called *Lamed*, i.e., "ox-goad," by the Hebrews, doubtless from its resemblance to that implement—a resemblance still traceable in the Phenician. L belongs to the order of consonants called liquids, and has the closest affinity to R. In some languages there is only one sign for both, as in Pehlwi; and in others, the one or the other sound is altogether wanting. Hence, the numerous substitutions of the one sound for the other in the Aryan languages. Thus, Eng. *plum*, Ger. *pflaume*, from Lat. *prunus;* Eng. *pilgrim*, Lat. *peregrinus;* Gr. or Lat. *epistola*, Fr. *épître;* the Swiss peasants pronounce *Kirche, Kilche;* and the Lat. termination *alis* becomes, after *l*, *aris*—as, materi-*alis*, famili-*aris*. L is also interchangeable with *n*—as, Gr. *pneumon*, Lat. *pulmo;* and, rather strangely, with *D* (q.v.). In certain combinations, the *l* of Latin words has become *i* in Italian—as, *planus, piano; Florentia, Firenze.* In Eng. *l* is often mute, as in *calm, yolk, should.* In the Scottish dialect, it is mostly mute in the end of words—as, *fa', fu', a'*, for *fall, full, all.* Similar to this is the frequent melting of *l* into *u* in modern French—thus, *à le* has become *au; chevals, chevaux.*

LA. See SOLMIZATION.

LAA'LAND, or LOLLAND (i.e., *low land*), a Danish island in the Baltic, at the southern entrance to the Great Belt. Area, 452 sq.m.; pop., with Falster, '80, 97,007. The surface is remarkably flat, and the soil exceedingly fruitful. Forests of beech and oak cover upwards of 50 sq. miles. The chief town is Nakskov, with a pop., '70, of 4,033, a good harbor, and considerable trade. At Aatholm, near the Nysted Fiord, there is the largest, and, in exotic plants, the richest, private garden in Denmark.

LABADIE', JEAN DE, 1610–74; b. Bourg-en-Guienne; educated in the Jesuits' college at Bordeaux, he entered their order and distinguished himself as a preacher. He exposed the abuses in the Roman church and urged reform; but finding no encouragement in his order, he left it and joined the Fathers of the Oratory in 1639, and soon after the Jansenists. In 1640, appointed canon of Amiens, he introduced reforms, holding meetings for the reading of the Bible, and administering the Lord's supper in both kinds to the people. Persecuted by the Jesuits, he became in 1650 a Protestant, and was for eight years pastor of the church at Montauban. In 1657 he was pastor in Orange, and in 1659 in Geneva. Here he exerted himself with great zeal to restore apostolic religion, and by his earnestness, sanctity, and austerity gained many followers. In 1666 he became pastor of a Walloon church in Middleburg, Holland; but still persecuted by his enemies, he left it, and went in 1669 to Amsterdam, where his followers soon formed a distinct sect called Labadists. It included many of rank and education, among whom were two ladies, the learned Anna Marie von Schurmann, and the authoress, Antoinette Bourignon. Expelled from the country as a separatist he went in 1670 to Erfurt, where he was protected by the princess Elizabeth who, through the influence of Anna Marie von Schurmann, became a disciple. Driven from this place in 1674, he went to Bremen and then to Altona, where he died. He left numerous works. The Labadists did not differ entirely from the Reformed church, but adhered to its doctrinal symbols. They were a sect of mystics who sought reform of life rather than of doctrine. They supported themselves by manual labor; and, after the example of the primitive church, held property in common; laid great stress on the internal light as indispensable for the understanding of the Bible; rejected infant baptism and the observance of holy days. They have been charged with immorality by some Roman Catholic writers, but without reason. They honored the institution of marriage. After Labadie's death his followers settled at Wiewert, but made few converts, and in the beginning of the 18th c. the sect became extinct. A few of them came to the United States and settled on the Hudson, but gained no permanence as a sect.

LABAGH, PETER, D.D., 1773–1858; b. N. Y.; descended from French and Holland ancestry, received a classical education under the direction of Dr. Peter Wilson of Hackensack, N. J., afterwards professor of Greek and Latin in Columbia college. In 1796, having studied theology with John H. Livingston, D.D.,—who had studied at Utrecht, Holland, and was afterwards president of Rutger's college, New Brunswick, N. J., and was considered the father of the Reformed Dutch church in America,—he continued his studies with prof. Froeligh of the same denomination. Subsequently he went as a licensed missionary to the western part of New York state, and from thence to Mercer co., Ky., where he established a church. Soon after, on returning to his

native state, he was installed as pastor of a church in Greenbush, near Albany, remaining there until 1809, when he was given the charge of the church in Harlingen, which he held 35 years. He was distinguished for the soundness, accuracy, and acuteness of his judgment, and the celerity with which his mind arrived at sound conclusions; also for a cheerful and happy disposition, rendered sweet by the pure spirit of habitual piety that pervaded his daily life. He was prominent in all the conventions of his denomination, carrying conviction to the mind of his hearer in controversial argument, as well as in seasons of religious interest; the revival of 1831 especially sustaining the popular estimate of his powers as a convincing expounder of the Word. He was successful in raising funds for the endowment of the theological seminary of the Reformed Dutch church, at New Brunswick, N. J. In 1860 a memoir of him by John A. Todd was published.

LABARRAQUE'S SOLUTION, or Labarraque's Disinfecting Liquid, or Solution of Chlorinated Soda, a disinfecting liquid first brought into notice by Labarraque, a Paris apothecary. It is prepared by mixing solutions of chlorinated lime, commonly called chloride of lime, and of carbonate of soda (sal soda). Twelve ounces of chloride of lime, 24 of sal soda, and 24 pints of water are the proportions used. The sal soda is dissolved in 3 pints of water, and the chloride of lime is triturated in a mortar with a portion of the water, a little being added from time to time, until the mixture is homogeneous. The remainder of the water is then added to this mixture, which is set aside for 24 hours. The upper portion will be clear; this is to be decanted off, and the residue passed through a muslin strainer until with the decanted portion there are 8 pints. This quantity is then thoroughly mingled with the solution of sal soda, and passed through a muslin strainer, and, if necessary, water added sufficient to make 11½ pints of liquid, which is to be kept in glass-stoppered bottles. Its specific gravity should be 1.045. It has been recommended to use bicarbonate of soda instead of common carbonate, or sal soda, because the precipitate of carbonate of lime is rendered thereby more crystalline, and therefore more readily precipitated, rendering the filtration more easy. It is also advised to have the bicarbonate of soda somewhat in excess. Labarraque's solution is a transparent liquid of a greenish yellow color, having a sharp, bitterish taste and an alkaline reaction. If lime-water be added a precipitate of carbonate of lime will be produced. It is a powerful disinfectant and bleaching agent, rapidly destroying the color of sulphate of indigo. There has been a good deal of discussion in regard to the precise constitution of this liquid, but it is generally regarded as a mixture of hypochlorite of soda, chloride of sodium, and bicarbonate of soda (using the more common names). According to Millon, the solution contains oxychloride of sodium $NaCl_2O$. Its use in medicine is as a gargle in putrid sore-throat (or diphtheria, q.v.) and in certain cases of scarlet fever, and also as a dressing or wash to gangrenous wounds. In such cases it must be diluted. It is also sprinkled over the floors of sick rooms or hospital wards, or exposed in shallow vessels. It is sometimes administered internally in zymotic diseases, in doses of from 20 to 30 drops, diluted in half a tumbler of water. It is a convenient and agreeable form of chlorine for the housekeeper in bleaching small articles, such as handkerchiefs, which may be readily bleached by adding half a teacupful of the solution to 4 or 5 quarts of water in an earthen wash-bowl, immersing the articles, and exposing them in immersion for a short time to the sunlight or at an open window, stirring from time to time, and afterwards thoroughly and repeatedly rinsing them in clear water.

LA'BARUM (derivation uncertain), the famous standard of the Roman emperor Constantine, designed to commemorate the miraculous vision of the cross in the sky, which is said to have appeared to him on his way to attack Maxentius, and to have been the moving cause of his conversion to Christianity. It was a long pipe or lance, with a short transverse bar of wood attached near its extremity, so as to form something like a cross. On the point of the lance was a golden crown sparkling with gems, and in its center the mysterious monogram of the cross and the initial letters of the name of Christ, with the occasional addition of the Greek letters *A* and *Ω*. From the cross-beam depended a square purple banner, decorated with precious stones, and surrounded by a rich border of gold embroidery. The cross was substituted for the eagle, formerly depicted on the Roman standards, and there were sometimes other emblems of the Savior. Between the crown and the cross were heads of the emperor and his family, and sometimes a figure of Christ woven in gold.

LABAT, Jean Baptiste, 1663–1738; b. Paris; entered the order of the Dominicans in 1685; was appointed professor of mathematics and philosophy at Nancy in 1687; went in 1693 as a missionary, first to Martinique, then to Guadaloupe, where he remained till 1705, distinguishing himself as an engineer and agriculturist. On returning to Martinique he was appointed *procureur-général* of the mission, and by successive governors highly esteemed for his scientific and diplomatic labors. He founded in 1703 the city of Basse-Terre, and took an active part in defending the island of Guadaloupe against the English. He organized a company of 60 negroes, who, it is reported, distinguished themselves by their efficiency and bravery. He returned to Europe in 1705, to obtain recruits for his order, but was detained by his superiors at Rome until 1709, and at Civitâ Vecchia till 1716. The remainder of his life was passed at Paris, where he died.

LAB'DANUM. See Cistus, *ante.*

LA BÉDOLLIER'E, Émile Gigault de, b. France 1814. While pursuing his primary legal studies he published a satirical poem entitled *Eloge du Gouvernement*, for which the government prosecuted him. The young poet defended himself before the court with wit and tact, and was acquitted. Deciding to live by his pen he set to serious work, and composed an essay on the life of Lafayette. It attacked the party of conciliation which Lafayette represented. The young men of that time (the early years of the reign of Louis Philippe) were addicted to wit at the expense of all opinions not thoroughly partisan on one side or the other; and young Bédollière's work was applauded by the radical republicans. He then launched into political journalism as editor of the *Coin de feu*, and contributed to a great number of journals and reviews. He became imbued with the doctrines of St. Simon, and his associations led him to more philosophical views. In 1849 he became and has remained one of the editors of the *Siècle*, in which his work was little relished by the clerical party and proportionally popular with other readers. His literary fecundity is extraordinary. Essays, editorials on the passing political situations, poems, romances, and translations in various languages, follow each other in quick succession. Among the great number of his works may be mentioned *Soirées d'Hiver*, 1838; *Beautés des Victoires et des Conquêtes de Français à* 1792 *à* 1815, 1839; *Les Industriels*, 1845; *Histoire de la Garde Nationale*, 1848; and *Nouvelle Moral en Action*, which has been commended by the Catholic episcopacy and used in some of their seminaries. His translations embrace some of the novels of Fenimore Cooper, Walter Scott, Capt. Marryat, Mayne Reid, and Dickens. His latest important work is entitled *Mœurs et Vie privée des Français*, in three large volumes. But it is for his tact, variety, and incisive style as editor of the *Siècle* that Bédollière is best known. He seems in his declining years to be among the French what Oliver Wendell Holmes is to the Americans—loved, admired, and respected, for a genius both sunny and solid.

LABEDOYÈRE, Charles Angelique Huchet, Count de, a victim of the reaction of 1815 in France, was descended from an ancient family in Bretagne, and was b. in Paris on April 17, 1786. He early entered the army; was adjutant to marshal Lannes in Spain in 1808, and received a severe wound at Tudela; joined the army in Germany after his recovery; distinguished himself at the capture of Ratisbon, and was Murat's adjutant at the battle of Esslingen. On the evening before the battle of Lützen, Napoleon promoted him to the command of a regiment of infantry. Returning to France again severely wounded, in the autumn of 1813, he married a lady of a family very much attached to the Bourbons; and receiving the command of a regiment, was posted near Vizelle when Napoleon returned from Elba. He immediately joined him, and was made a lieut.gen. and peer of France. He fought with great gallantry at Waterloo; and after the battle hastened to Paris, when he spoke with great violence against the Bourbons in the stormy sitting of the chamber of peers, on June 22, 1815. After the capitulation, he thought to have escaped to America, but was taken prisoner, condemned to death, and notwithstanding every effort that could be made on his behalf, shot on Aug. 19, 1815. He was a man of a chivalrous character, and devotedly attached te the emperor.

LABEL. See Dripstone.

LABEL (Fr. *lambeau*, a strip or shred), the ribbon pendent at the sides of a mitre or coronet.

LABEL, Lambel, or File, in heraldry, the mark of cadency which distinguishes the eldest son in his father's lifetime, familiar to us from its entering into the composition of the arms of the prince of Wales and other members of the royal family. It consists of a horizontal stripe or fillet, with three points depending from it. When the mark of cadency itself is designated a *file*, its points are called *labels*. It is said that the eldest son's eldest son should wear a label of five points in his grandfather's lifetime, and, similarly, the great-grandson a label of seven points, two points being added for each generation. The label extended originally quite across the shield, and sometimes occupied the upper, though now it is always placed in the lower part of the chief: the points, at first rectangular, assumed in later times the form called pattée, dovetailed, or wedge-shaped; and more recently, the label ceased to be connected with the edges of the shield. Edward I., in his father's lifetime, bore the arms of England within a label not of three, but of five points azure, joined to the head of the shield, and interlaced with the tail of the uppermost lion; Edward II., when prince of Wales, used indifferently the label of three or of five points, as also did Edward III.; but from the time of the Black Prince downwards, the eldest son of the king of England has invariably differenced his arms with a label of three points argent, and the practice has been for the younger sons also to bear labels, which are sometimes of other colors and more points, and differenced by being charged with fleurs-de-lis, castles, torteaux, hearts, crosses, etc., as directed by the sovereign by sign-manual registered in the college of arms. The practice of differencing by the label which is thus *in viridi observantia* in our own and other royal families, is less used by subjects. Like other marks of cadency, labels are sometimes borne as permanent distinctions by a particular branch of a family.

LABEL, a term which signifies at once an inscription identifying or defining the article to which it is affixed, and the medium which bears or conveys the same. Thus,

a label may not necessarily bear any inscription, and still sustain one definition of the term. Labels are employed for identification, and also to signify the destination of packages to be transported from one place to another; as book-labels, to assist in cataloguing libraries in the one instance, and express-labels in the other. The etymology of the word exhibits its derivation from the Latin *labellum*, a diminutive, signifying "a little lip," and referring, in this use of it, to the "tag," or slip of parchment by which leaden seals were attached to documents, in ancient times. In law, the term label has a specific significance gained from its connection with proprietary rights; for which see TRADE-MARKS.

LABETTE, a co. in the s.e. part of Kansas, bordering on the Indian territory; drained partly by the Neosho, partly by the Labette, and partly by affluents of the Verdigris; 649 sq.m.; pop. '80, 22,736. The surface is undulating, the soil fertile. Wheat, corn, oats, cattle, and hay are the staple products. Deposits of coal and limestone exist in some localities. The county is intersected by the Missouri, Kansas, and Texas railroad, and the Neosho Valley division of that road terminates in it. Assessed value real and personal property, $2,710,043. Capital, Oswego.

LABIS, a Greek word meaning "a spoon." An implement employed in the Greek church in the administration of the elements in the Lord's supper; the bread being mingled with the wine, and both administered together.

LABIATÆ (*Lamiaceæ* of Lindley), a natural order of exogenous plants, containing almost 2,500 known species, mostly natives of temperate climates. They are herbaceous, or more rarely half-shrubby, and have 4-cornered stems and opposite branches; and opposite leaves, without stipules, abounding in receptacles of volatile oil. The flowers are often in cymes or heads, or in whorls; sometimes solitary. The calyx is inferior, with 5 or 10 teeth, or 2-lipped. The corolla is hypogynous, 2-lipped, the lower lip 3-lobed. The stamens are four, two long and two short, or by abortion only two, inserted into the corolla. The ovary is deeply 4-lobed, seated in a fleshy disk, each lobe containing a single ovule; there is a single style with a bifid stigma. The fruit consists of 1 to 4 *achenia*, inclosed within the persistent calyx.—A general characteristic of this order is an aromatic fragrance, which in many species is very agreeable, and makes them favorites in our gardens. Some are weeds with an unpleasant odor. Many are natives of Britain. Some are used in medicine, and others in cookery for flavoring. Mint, marjoram, rosemary, lavender, sage, basil, savory, thyme, horehound, balm, patchouli, germander, and dead nettle, are examples of this order.

LABI'ENUS, TITUS, B.C. 98–45; was tribune in 63 when Cicero was consul; lieutenant of Cæsar in the Gallic war, and afterwards prætor. In 54 B.C. he twice defeated the Treveri, and in 52 distinguished himself in the campaign against Vercingetorix. When the civil war broke out he sided with Pompey, and treated with cruelty Cæsar's soldiers who fell into his hands at Dyrrhachium. After the defeat at Pharsalia he went to Africa, and thence, after the defeat at Thapsus, to Spain, where he fought against Cæsar at Munda, where in a panic his troops were routed and he fell.

LABILLARDIÈRE, JACQUES JULIEN HOUTON DE, 1755–1834. He became famous for his researches in botany, natural history, geology, zoology, and anthropology at a time when all these studies were in their infancy. Among his valued works is: *The Relation of the Voyage in Search of La Perouse in the Arctic Sea north of Asia and Europe.* Commander of a scientific expedition sent out by France in 1785 to discover a northwest passage, and never heard of after it entered that fatal sea. This report of Billardière contained a great mass of facts in natural history. *The Flora of New Holland and New Caledonia* was the fruit of another voyage, and a work of the highest value in its day.

LABLACHE, LUIGI, a celebrated operatic singer, was b. in Naples in 1795, whither his father and mother, who were French, had fled from Paris during the horrors of the revolution. His first engagement as a singer was at the San Carlino theater at Naples, in 1812; he afterwards sang, with much success, in La Scala, Milan, and in Vienna; singing also at the San Carlo, at Naples, during the intervals of the Vienna season. On his first appearance in London in 1830, he created a great public sensation; and for a number of years he resided alternately in the French and English capitals, singing both in the Paris and London seasons. He died at Naples in 1858. His voice, a deep bass, has hardly ever been equaled either in volume or quality; and his acting, particularly in the characters of "Figaro" and "Leporello," was almost as remarkable as his singing. He was the author of a treatise on singing, published in 1843; and he long gave instructions in singing to queen Victoria.

LABOR, in political economy, a term so dependent for its meaning on the circumstances in which it is used, that any scientific definition of it would lead to misunderstanding. The best service, in fact, towards rendering it intelligible, is to clear away some attempts that have been made to subject it to scientific analysis and definition. It has been separated into productive and unproductive, but no such division can be fixed. A turner who puts a piece of wood on his lathe and makes a top is of course a productive laborer. The same quality cannot be denied to the man who beams a web for the loom; but if he shares in the production of the cloth, so does the overseer who walks about and adjusts the industrial arrangements of the manufactory.

Having included him, we cannot well say that the policeman, who keeps order in the district, and enables its manufactures to go on, should be excluded. Again, the man who contributes to make a book, of course appears as a productive laborer; but what the author contributes is not matter, but intellect; and it would be difficult to maintain that he ceases to be productive if he deliver such matter in an oration or a sermon. We can hardly count the distiller, who makes a glass of whisky, a productive laborer, and exclude the musician, who produces another and less dangerous excitement. It is equally impossible to draw the line between bodily and intellectual labor, since there is scarcely a work to which man can put his hand which does not require some amount of thought. A distinction between capital and labor has often been attempted to be established, with very fallacious and dangerous results. Capital in active operation infers that its owner labors. If the capital is not labored the owner must be content to let it lie at ordinary interest. If he want profit from it, he must labor, and often severely. In a large manufactory, where the proprietor is supposed to be a gentleman at large, drawing his fortune from the sweat of the brow of his fellow-men, he is often the most anxious and the hardest-worked man in the whole establishment.

LABOR (*ante*). It is undoubtedly correct to divide human labor into two kinds, mental and physical; and to concede that without the one there could hardly be the other. It is only among the most laborious and industrious races that we find the most comprehensive and productive mental effort. That is, where the physical labor is the most varied and inventive. The Esquimaux are perhaps the most severely tasked by the necessity for arduous physical effort, of any race; and they are doubtless among the lowest in the order of mental accomplishment; but these facts do not disturb the proposition, since the labor of the Esquimaux extends but in one direction—the protection and perpetuation of life. So far as the history of man has been traced, there has been found no condition of existence unaccompanied by labor, both physical and mental, the latter, certainly, in the earlier periods, devoted simply to the direction of the former towards the only absolute necessity, the sustenance of life. This brings us by way of a circle to our beginning, that mental labor must precede physical labor, while it can only increase and extend with the increase and extension of the latter. Which is to say that while a mental impression of the condition of hunger, and mental inquiry as to the existing means for allaying it, must precede the physical effort to procure such means—mental effort will not proceed beyond this point, except correlatively with the progress and extension of physical labor. It should then be borne in mind that in considering one kind of labor we are including the other, so intimate is the relation between them; and that the ratio of mental activity is in proportion to the multiplication of the varieties of physical labor. Such knowledge as we possess of prehistoric races has been derived from existing results of their labor, naturally of the most primitive character, rough-hewn implements and weapons of stone giving that period of human existence the distinctive title of the "stone age." This period was followed by the *neolithic* or new stone age, in which these implements and weapons were more highly finished and polished, and better adapted to their purpose. After this came the discovery of the metals and what is termed the "bronze" age, since which time there has appeared to be no possible limit to the extension of human labor, or to its resources in ways and means. As implements multiplied, wants increased, and the history of the human race is in fact a record of the wants of man and his devices for supplying them. One such device made its appearance very early in history, that of a division of labor, by which one individual became the fisherman, another the hunter, and a third the tailor of a settlement or group—such groups having originated in the instinct of self-preservation by numbers, and in the law of the value of numbers as a factor in labor. On this principle, too, originated the soldier, or guard, whose duty it was to watch while others worked; and the messenger, or carrier, inefficient to originate, but useful to carry out the designs of those better qualified. The exercise of labor, and particularly after this had become comparatively skillful, involved the accumulation of wealth—in stores of food, arms, clothing, or building material, which in turn aroused the sentiment of cupidity in contiguous groups of men; and this being carried to the extent of a forcible attempt at possession, resistance followed, and war, with its attendant elements of killed, wounded, and prisoners, ensued. The accumulation of prisoners must soon have become an irksome product of success, and primitive ingenuity cast about for relief from this very positive and threatening burden; and it could not have been long before the idea of the enforced labor of prisoners dawned on the minds of the conquerors in battle. From this idea, in part at least, arose the institution of slavery.

The tendency to organize, out of which springs all system, found expression in slavery from its very beginning. The earliest records and the most ancient inscriptions and mural paintings tell of slave-gangs and task-masters, and at length of the classification of slaves by their duties. This was at once a simplification of labor by co-ordination of its processes; and a necessity to the existence of the slave-holders themselves, since the prevalence of a condition of war produced slaves in such numbers that they could not possibly have been controlled without rigid system and discipline. The time and place of the origin of slavery are unknown. Nearly all the ancient races practiced

it, and we may well believe that it grew out of an inherent impulse in human nature, and was spontaneous among different races, whenever the conditions existed rendering it practicable. It can be traced by internal evidence to a period 3,000 years before the Christian era, though it was not until the time of the greatest prosperity of the Phenicians that the custom of buying and selling slaves was originated—and by that remarkable people. Probably in no other country did slavery reach the same condition of development as in Rome. Obtaining the institution from Carthage, Rome soon outdid its teacher in the numerous and systematic methods by which the system was applied for the supply of real and imaginary wants. To Carthage the world was indebted for the displacement of the existing system of yeomanry farming, and the substitution of slave-labor in agriculture. Carthage had received the system from Phenicia, a commercial and manufacturing country, and had adapted it readily to the conduct of agriculture on an enormous scale by wealthy landholders. Rome adopted the same practice, but added to it an organization of slave-labor for the performance of official and domestic duties, on a scale so comprehensive as never to have been since equaled in this particular. The Roman slave-holding system comprised two classes, public and private, the former including the slaves of the state, the latter those of individuals. The former were employed in public works—building, road-making, as rowers in the galleys, etc.; the latter were divided into two kinds—rustic, and urban or domestic. The whole number of these slaves were divided into as many as 250 different classes, each representing some specific duty or employment. In the time of Sylla there are said to have been 13,000,000 slaves in Italy. The fall of the Roman empire brought about the establishment of the feudal system in Europe, while the advance of Christianity gradually did away with the institution of slavery. Meanwhile, it was not extraordinary that out of the old order of things there should have grown into existence conditions, modified, but similar to those which preceded them, which should, in turn, have exercised their just influence upon civilization. Thus, in the institution of guilds which began to be prevalent about the 12th c., we see the influence of the slave classification of ancient Rome and Carthage, and the distributed labor education which resulted from the division of labor. The institution of the guild was the protest of the laboring class against feudalism. Originating in the Anglo-Saxon family system, it became intrenched behind the growing strength of Christianity, and gradually assimilated with it all the forces that were inimical to the control of the laboring class by the feudal barons and other potentates. Through the influence of the guild hand-labor became a power, hand-laborers were artists, and the golden age of manual skill arrived. In the work of the loom, in metal-working and wood-carving, in the manufacture of pottery and glass, this period has never been equaled. Artists like the Della Robbias, Ghiberti, Andrea del Sarto, and Benvenuti Cellini ennobled labor. But the age became luxurious, and the masterpieces of art labor centered in a few hands. As has ever been the case in history, interests conflicted, wealth tended to centralize and consolidate itself, the guilds divided among themselves into plodders and those who accumulated the results of their toil, vast operations in trade became possible to those who possessed the necessary enterprise and skill, and so *capital* was born as a new factor in the utilization of labor, and a new enemy for the laborer to confront and to antagonize. The influence of the new force was speedily felt, and the tendency to exclusiveness and monopoly on the part of the wealthy awakened in the workers the idea of organization, and there grew up an independent *working-class* for the first time in history. Now, too, for the first time in its application to large and organized bodies of laborers, the wage question took prominence. This arose primarily from the effect upon population of the terrible plagues and famines, which, beginning about the middle of the 14th c., began to devastate Europe. The depopulation of countries resulted in a scarcity of laborers, but every attempt on the part of the latter to insure the adoption of a higher rate of wages on this account met with strenuous and persistent opposition from employers. The introduction of the factory system, and the application of power to machinery, in the manufactures, strengthened the hands of the employers, and correspondingly weakened the employed. Meanwhile, warfare was unceasing between the two, and the necessities of the case brought about the conception of the *trade-union*, in the latter part of the 18th c., and this institution has continued to thrive and to combat capital ever since. The history of labor in the United States has been mainly influenced by questions of wages and hours of service, by immigration, by the introduction of the trade-union, and by the institution of negro slavery. The enormous displacement of human by machine labor, and the practical abolition of the apprentice system through foreign influence, have also largely complicated the labor question in America. For further information on these points, see TRADE-UNIONS; SLAVERY; MACHINERY; GUILDS: SOCIALISM: INTERNATIONAL WORKING MEN'S ASSOCIATION.

LABOR AND CAPITAL. See page 893.

LABORATORY. This term is generally applied to establishments for conducting chemical or physical investigations, or for chemical manufacture. Chemical laboratories may be for purposes of instruction, as are those which are attached to colleges or other high schools. These institutions also sometimes have special laboratories for research. All large private manufacturing establishments where chemical processes are employed to a considerable extent have laboratories attached to them in which investiga-

tions are carried on; many of them in the nature of preparatory trials of processes, to facilitate the process of manufacture. A government manufactory is sometimes called a laboratory, and so are many smaller private establishments, as pharmaceutical laboratories, metallurgical laboratories, telegraph laboratories, etc. The workshop of a taxidermist is often, and properly, called a laboratory. It is interesting in studying the history of chemistry to observe the great change that has gradually taken place in the appliances and apparatus used in the laboratories, and also in some cases the similarity of process. Much of the old apparatus was very complicated, a natural result of the complex manner of thought resulting from newly-formed theories or speculations; it was apparatus made for the trial of things which seemed extremely occult. Heat, however, performed a very important part in the old alchemist's operations, as well as in those of the modern chemist, and furnaces of various kinds have, therefore, always formed a part of laboratory furniture; but the modern forms of furnace or heating apparatus are much more efficient than the old, on account of the employment of elementary factors of combustion, whose more widely separated electro-chemical properties cause more intense union, and therefore greater evolution of heat. The oxyhydrogen blowpipe was not used until Priestley's discovery of oxygen, the previously-known hydrogen, phlogiston, or inflammable air, being until then a comparatively inert body.

LABORATORY, Royal, an extensive military manufacturing department in Woolwich arsenal. Although it has existed for many years, it was only in 1855 that the present very large establishment was organized. Here are foundries for the casting of shot, shell, grape, etc.; apparatus for the manufacture of percussion-caps, which are formed—hundreds at a time—out of the copper sheet; presses where rifle-bullets are squeezed into shape; fuses in all stages of manufacture; and a thousand other instances of combined ingenuity and power. Conspicuous among the mechanism may be mentioned the making of paper for cartridges, and subsequently the making and filling of the cartridges themselves. Government liberally grants permission (through the war office) to inspect the factory. The cost of the laboratory varies considerably, according to the accumulation of stores. In addition to the royal laboratory, there are also laboratories—though on a comparatively small scale—at Portsmouth and Devonport.

LABOR BUREAU (Castle Garden). See page 893.

LABORERS. The only peculiar laws affecting laborers are where they come within the description of "servants in husbandry, artificers, calico-printers, handicraftsmen, miners, colliers, keelmen, pitmen, glassmen, potters, laborers, or other persons"—the word "laborer" applying to a description of employment which, though comprehensive, is difficult to be defined. There must be a contract of service of some kind. The peculiarity consists in a summary remedy being provided for and against them before justices of the peace, who may compel them to serve out the time they contracted for, under a penalty of fine or imprisonment, and on the other hand, may order the masters to pay the wages. See Servants. Laborers' wages are prohibited from being paid in kind or with goods, by the truck act (q.v.).

LABORDE, Alexandre Louis Joseph, Comte de, 1774–1842, b. France; son of Jean Joseph; author of an elaborately illustrated work on the history and scenery of Spain; the monuments of France; pictorial travels in Austria, etc. At times he was in the French legislative assembly, where he gave a firm and consistent support to the liberal side in politics known as the left center.

LABORDE, Jean Joseph, Marquis de, 1724–94, b. Paris; remarkable for having quickly amassed a great fortune, and for the beneficence of his use of it. He commenced life poor, but his activity and skill in commercial affairs and fortunate opportunities made him early rich. He loaned largely to the French government, became banker of Louis XV., and advanced money to carry on the war with England when in 1778 France allied with the United States to achieve their independence. His generosity was proverbial. He became the founder and supporter of a great number of charitable institutions in Paris, consecrating each year nearly $100,000 of his income to charities. In 1788 he gave between one and two million dollars to aid in the construction of hospitals. On loans to benevolent institutions he would often refuse interest. The royal family having often been helped by him during the revolution of 1789, he became suspected by the Robespierrean junta, was condemned for sympathy with aristocrats, and met his death by the guillotine.

LABORDE, Léon Emmanuel Simon Joseph, Comte de, 1807–69; b. France; son of Alexandre L. J. Gifted by nature with artistic taste and skill, he devoted his life to works calling it into exercise. His first important publication was an elaborately illustrated work on Asia Minor, Syria, Arabia Petrea, and the valley of the Nile. He was subsequently secretary of Chateaubriand in the embassy to Rome; aide-de-camp to Lafayette during the revolution of July, 1830, and then secretary to the embassy to London. In 1836 he resumed artistic work, and thenceforward was constantly in public service where his archæological learning and skill in drawing could be made effective. The very long list of his published works, mostly architectural, shows extraordinary industry and aptitude in art work.

LABOR, Knights of. See page 893.

LABOR STRIKE. See STRIKE.

LABOUCHERE, HENRY. See page 893.

LABOUCHÈRE, HENRY, Baron TAUNTON, 1798–1869; b. England; of French descent, his ancestors having left their country at the time of the revocation of the edict of Nantes. They settled in Holland, where the father of Henry was a partner in the banking-house of Hope & Co., of Amsterdam. The latter was educated at Oxford, settled in England, and married a daughter of sir Thomas Baring. In 1826 he was elected to parliament from St. Michael's, and about the same time made a visit to America to observe the peculiarities of life in the United States, and to study the working of its institutions. He became a strong liberal in English politics, and for many years was identified with the support of the measures and the initiation of the policy of the party of progress. He retained his seat in parliament by successive re-elections until 1859, when the title was conferred upon him which made him a peer. From 1832 to 1838 he occupied continuously offices of high responsibility in the English government, closing with that of secretary of state for the colonies. He had no heir, and his title is extinct.

LABOUCHÈRE, PIERRE ANTOINE, b. Nantes, 1807; educated in Germany and England for a commercial life, but ardent with desire to become a painter. He visited the United States in 1827 as secretary of an American banker, and soon after made a voyage to China on a merchant ship. Afterwards, enabled to cultivate his taste for painting, he studied in Italy, then in Paris, and completed his pupilage under Delaroche. Protestant in religion, the subjects of his works were largely drawn from the actors and history of the reformation. He d. 1873.

LABOULAYE, EDOUARD RENÉ LEFÉBVRE, b. Paris, Jan. 18, 1811. Considered in the versatility of his genius, and the noble directions in which his learning, industry, and wit have been used, L. was one of the eminent men of his time. He was a student of law, early in life devoting himself to the history of continental laws with singular energy and intelligence. At the age of 28 he became known by an elaborate work entitled *History of Landed Property in Europe from the Time of Constantine to Our Day*, 8 vols. (Paris, 1839). In 1842 he published an essay on the life and doctrines of Frederic Charles de Sevigny, and became an advocate in the royal court of Paris. He was engaged at this time on an elaborate work, which appeared in 1843, entitled *Researches on the Civil and Political Condition of Women from the Times of the Romans to the Present.* In 1845 he published the *Essay on the Criminal Laws of the Romans Concerning the Responsibilities of Magistrates.* Each of these works was crowned on its appearance by the academy of inscriptions, and the same year he was elected a member of that institution. All these works attracted great attention among the learned, and contributed to revive in France the study of the history of law. To erudition he joined original views, and great simplicity and clearness of expression, forming a style at once concise, quaint, and elegant. These qualities grew to be still more remarkable in his later and more imaginative and satirical works. In 1849 he became professor of comparative legislation in the college of France. Under the empire of Napoleon III. he associated with the men who endeavored to revive public spirit in France. He wrote with enthusiasm and intelligence on the institutions of free America to induce his countrymen to adopt the progressive spirit of its people. His lectures on this country, during and after the war for the preservation of the union, were extremely popular in Paris, and served to keep a sufficient weight of French sentiment on the side of the union and against slavery to prevent Napoleon from throwing the weight of his power openly against our government. M. L. had the advantage of handsome personal presence and winning address. His lectures on law had attraction even to those who had no interest in its study.

In 1863 M. Laboulaye published one of the first of the imaginative and satirical works which afterward made him, for the time being, quite as famous a satirist as jurist. This was a little volume, entitled *Paris in America*, in which he humorously employs a supernatural agency to transport a Frenchman with his family into the midst of American family life and town excitements at a period when disaster had come to the national arms during the war for the union. The veiled drollery of the situations by which he lampoons some of the peculiarities of the Napoleonic government, making them ridiculous while defending them with all the ardor of French patriotism, is among the best specimens of irony extant. This book went through upwards of 30 editions in Paris, and was admirably translated into English by Mary L. Booth, of New York. In a similar vein of political satire were his tales of Bluebeard, *The New Bluebeard* and *The Poodle Prince, Prince Caniche*, published subsequently. The latter appeared in 1868, ran through many editions, and did much to pave the way to the easy dropping out of the Napoleonic dynasty two years later.

The following list of M. Laboulaye's works, in addition to those already referred to, exhibits the intellectual activity and scope of his life, viz.: *History of the United States*, 8 vols. (1854); *Contemporaneous Studies of Germany and the Slavic States*, 12 vols. (1854); *The Tables of Bronze of Malaga and Salpeusa* (1856); *Souvenirs of a Traveler* (1857); *Religious Liberty* (1858); *Studies upon Literary Property in France and England* (1858), *Introduction to Fleurry's French Law* (1858); *Abdallah, an Arabian Romance* (1859); *The United States and France* (1862); *The State and Its Limits* (1863); *Essays on the Politics of*

M. de Tocqueville (1863); *The Liberal Party, Its Programme* (1864); *Constitutional Republic* (1871). A new edition of his *Fairy Tales* for children was published 1883.

M. Laboulaye has also translated from English into French, Walter *On the Law Proceedings of the Romans;* Channing's social works, and Channing *On Slavery in the United States,* with an essay on his life and doctrines; also, Franklin's *Memoirs and Correspondence,* with an introduction. His contributions to French reviews, legal and political, and to the journals of Paris, were very numerous and have had great influence. D. 1883.

LABOURDONNAIS, or LABOURDONNAIE, Bertrand François Mahé de, 1699–1755; b. in St. Malo; a French naval officer, who entered the service of the French East India company as a lieutenant in 1718, and was promoted to the position of captain in 1724. In 1734 he became gov.gen. of the isles of France and Bourbon, and received command of a squadron in 1741. In the war between England and France he gained a splendid victory over an English fleet, near Madras, and captured that town in 1746. He was recalled to France in 1848 and imprisoned in the Bastille for 3 years, owing to unjust accusations which were brought against him by Dupleix, gov.gen. of the French Indies, who was jealous of his success. In 1751 he was tried by a commission appointed by the council of state, and acquitted. He was restored to liberty, but his spirit was crushed and he died in poverty in 1755. His life has been written by his grandson, the actor Bertrand François Mahé, and his talents and virtues are praised by Saint-Pierre in the preface to *Paul and Virginia.*

LAB'RADOR (Port. *terra labarador,* "cultivable land"), the name given by certain Portuguese discoverers to the continental coast of America near Newfoundland; a name as inappropriate as that of Greenland! The name gradually came to be extended from the strait of Belle Isle to Hudson's strait, being sometimes carried as far westward as the eastern shores of Hudson's bay. More properly, however, Labrador embraces only such portions of that vast peninsula as do not fall within what were formerly the chartered territories of the Hudson's Bay company (q.v.), by pouring water into Hudson's strait or bay. In this sense, the country stretches in n. lat. from about 52° to about 60°, and in w. long. from about 55° to upwards of 65°; area, 70,000 sq.m.; pop. 5,000. Of this extensive country the interior is little known, but is understood to be mostly an impenetrable wilderness of swamps and forests. The maritime border, however (although its shores are wild and precipitous, reaching a height of from 400 to 600 ft., and on the n. from 1000 to 1500 ft.), is not without its value. The sea is here far less subject to fogs than it is in the neighborhood of Newfoundland, where the warm waters of the Florida stream meet the cold currents from the n.; and as it is constantly supplied from the polar ice, its temperature is remarkably favorable both to the quantity and the quality of its fish. Of the entire population of Labrador, 4,000 are Esquimaux, who are settled on the gulfs and creeks of the coast, and who subsist chiefly by fishing. Many European establishments also have sprung up on the coast, some of them, such as the Moravian settlements, blending commercial pursuits with missionary labors. The principal missionary stations are Nain (founded 1771), Okak (1776), Hebron (1830), and Hopenthal (1782). The fisheries employ, in the season, nearly 1000 decked vessels, belonging partly to the British provinces, principally Newfoundland, and partly to the United States. Besides a few furs and feathers, the exports consist of cod and salmon, with cod-oil and seal-oil, the total value in 1875 amounting to £1,642,953. The climate, like that of North America generally, is subject to great vicissitudes In summer, the thermometer ranges as high as 85° Fahr.; in winter, the temperature, and that in nearly the same latitude as the British isles, falls 30° below the freezing-point. Labrador is a dependency of the United Kingdom, but it has never had a separate government of its own. Part of it is under the jurisdiction of Canada, and part under that of Newfoundland. It is supposed to have been visited by the Northmen about the 9th century.

LAB'RADORITE, or Labrador Stone, a variety of feldspar (q.v.), common as a constituent of dolerite, greenstone, the gabbro, and hypersthene rocks. It consists of about 53 per cent of silica, and 29 alumina, with 12 lime, and a little soda and peroxide of iron. It is cut into snuff-boxes and other articles; taking a fine polish, and often exhibiting rich colors, not unfrequently several in the same piece, when the light falls on it in particular directions; the general color being gray. It was first discovered by the Moravian missionaries in the island of St. Paul, on the coast of Labrador. It has been found in meteoric stones.

LAB'RADOR TEA, a low evergreen shrub, belonging to the heath family, found in moist places from Pennsylvania northward. The leaves when crushed are fragrant, and are used by the people of Labrador as a substitute for tea. It is also found in the n. parts of Europe, and it is reported that the leaves are used in Russia for tanning leather, and as a substitute for hops in brewing. The plant is said to possess narcotic properties.

LAB'RIDÆ, a family of osseous fishes, ranked by Cuvier in the order *acanthopterygii* (q.v.), by Müller in his new order, *pharyngognathi* (q.v.). They are divided by Müller into two families, *cteno-labridæ* and *cyclo-labridæ,* the former having ctenoid, the latter cycloid scales; the former comparatively a small, the latter a very numerous family. They are generally oval or oblong, and more or less compressed, with a single dorsal fin.

spinous in front, and the jaws covered by fleshy lips. Their colors are generally brilliant. They abound chiefly in tropical seas, but 12 or 13 species are found on the British coasts, none of them large, nor esteemed for food. The most valuable of the family is the tautog (q.v.) of North America. To this family belong the wrasses and the parrot-fishes, one of which is the celebrated *scarus* of the ancients.

LABROUSTE, Pierre François Henri; b. France, 1801. Admitted in 1819 to the *école de beaux arts*, he won the second prize in architecture the following year, and the first prize in 1824. He then studied in Rome, returned to Paris in 1829, and designed the picturesque façade of the new *palais de beaux arts*. In 1837 he designed the hospital of Lausanne; the following year the library of St. Géneviève. He was one of the first architects to make artistic use of iron carpentry, and in the reconstruction of the library of St. Géneviève his work of that kind was original enough to be both greatly ridiculed and greatly admired. From 1843 to 1867 he was constantly engaged on public works in the government service. He d. 1875.

LABRUYERE, Jean de, a French author of celebrity, particularly noted for his nice and delicate delineations of character. He was born at Dourdan, in Normandy, in 1644 or 1646, was brought to the French court at the recommendation of Bossuet, and became one of the tutors of the dauphin, whose education Fenelon superintended. He spent the whole remainder of his life at court, in the enjoyment of a pension, and in the most intimate intercourse with the most accomplished men of his time. The work on which his high reputation rests, *Les Caractères de Théophraste, traduits du Grec, avec les Caractères ou les Mœurs de ce Siècle* (Par. 1687), has gone through many editions, some of them annotated, and has been translated into several languages.

LABUAN′, an island of the Malayan archipelago, lies about 30 m. off the n.w. coast of Borneo. It measures 10 m. by 5, and the latitude and longitude of its center are 5° 22′ n., and 115° 10′ east. Small as it is, it is peculiarly valuable. Besides possessing a good harbor, it contains an extensive bed of excellent coal, which is worked by a company of British capitalists formed in 1862; and having become, in 1846, a British possession, it bids fair, from its political connection and its natural advantages, to be a nucleus of civilization for the whole of the surrounding islands. It is a see of the church of England. Exports (1875), £114,332; imports, £119,362. Pop. '80, 6,000.

LABUR′NUM [*Cytisus* (q.v.) *laburnum*], a small tree, a native of the Alps and other mountains of the s. of Europe, much planted in shrubberies and pleasure-grounds in Britain, on account of its glossy foliage and its large pendulous racemes of yellow flowers, which are produced in great abundance in May and June. It is often mixed with lilac, and when the latter preponderates, the combination has a fine effect. In favorable circumstances, laburnum sometimes attains a height of 20, or even 40 feet. It is very hardy, and nowhere flourishes better than in the n. of Scotland. It is of rapid growth, yet its wood is hard, fine-grained, and very heavy, of a dark-brown or dark-green color, and much valued for cabinet-work, inlaying, and turnery, and for making knife-handles, musical instruments, etc. The leaves, bark, etc., and particularly the seeds, are nauseous and poisonous, containing *cytisine*, an emetic, purgative, and narcotic principle, which is also found in many allied plants. Accidents from laburnum seeds are not unfrequent to children; but to hares and rabbits laburnum is wholesome food, and they are so fond of it that the safety of other trees in a young plantation may be insured by introducing laburnum plants in great number, which spring again from the roots when eaten down. —A fine variety of laburnum, called Scotch Laburnum, by some botanists regarded as a distinct species (*C. alpinus*), is distinguished by broader leaves and darker yellow flowers, which are produced later in the season than those of the common or *English* laburnum.

LAB′YRINTH (a word of unknown origin, derived by some from Labaris, the name of an Egyptian monarch of the twelfth dynasty), the name of some celebrated buildings of antiquity, consisting of many chambers or passages difficult to pass through without a guide, and the name hence applied to a confused mass of constructions. In the hieroglyphics, the word *mera* signifies a "labyrinth." The principal labyrinths of antiquity were the Egyptian, the Cretan, and the Samian. The first, or Egyptian, of which the others seem to have been imitations, was situated at Crocodilopolis, close to the lake *Mœris*, in the vicinity of the present pyramid of Biakhmu. According to the classical authors, it was built by an Egyptian monarch named Petesuchis, Tithoes, Imandes, Ismandes, Maindes, or Mendes. The recent discovery of the remains of this building by Lepsius has, however, shown that the city was founded by Amenemha I., of the 12th Egyptian dynasty, about 1800 B.C., and that this monarch was probably buried in it, while the pyramid and south temple were erected by Amenemha III. and IV., whose prænomens resemble the name of Mœris, and their sister, Sebeknefru or Scemiophris, appears to have been the last sovereign of the 12th dynasty. Great confusion prevails in the ancient authorities as to the object of the building, which contained 12 palaces under one roof, supposed to have been inhabited by the dodecarchy, or 12 kings who conjointly reigned over Egypt before Psammetichus I.; while, according to other authorities, it was the place of assembly of the governors of the nomes or districts, 12 in number according to Herodotus, 16 according to Pliny, and 27 according to Strabo. It was built of polished stone,

with many chambers and passages, said to be vaulted, having a peristyle court with 3,000 chambers, half of which were under the earth, and the others above ground, which formed another story. The upper chambers were decorated with reliefs; the lower were plain, and contained, according to tradition, the bodies of the 12 founders of the building, and the mummies of the sacred crocodiles, conferring on the building the character of a mausoleum, probably conjoined with a temple, that of Sebak, the crocodile-god, and so resembling the Serapeium. Herodotus and Strabo both visited this edifice, which was difficult to pass through without the aid of a guide. It stood in the midst of a great square. Part was constructed of Parian marble—probably rather arragonite—and of Syenitic granite pillars; had a staircase of 90 steps, and columns of porphyry; and the opening of the doors echoed like the reverberation of thunder. For a long time great doubt prevailed whether any remains of the building existed, and it was supposed to have been overwhelmed by the waters of the lake Mœris; and although P. Lucas and Letronne thought they had discovered the site, its rediscovery is due to Lepsius, who found part of the foundations or lower chambers close to the site of the old Mœris lake, or modern Birket-el-Keroun. According to Pliny, it was 3,600 years old in his days.

The second, or next in renown to the Egyptian, was the labyrinth of Crete, supposed to have been built by Dædalus for the Cretan monarch Minos, in which the Minotaur was imprisoned by his orders. Although represented on the Cretan coins of Cnossus sometimes of a square, and at other times of a circular form, no remains of it were to be found even in times of antiquity, and its existence was supposed to be fabulous. The only mode of finding the way out of it was by means of a hank or skein of linen thread, which gave the clue to the dwelling of the Minotaur. The tradition is supposed to have been based on the existence of certain natural caves or grottoes, perhaps the remains of quarries, and it has been supposed to have existed n.w. of the island, near Cnossus, while a kind of natural labyrinth still remains close to Gortyna. The idea is supposed to have been derived from the Egyptian.

The third of the labyrinths of antiquity was the Samian, constructed by Theodorus and artists of his school, in the age of Polycrates (540 B.C.), supposed to be a work of nature embellished by art, having 150 columns erected by a clever mechanical contrivance.—Other inferior labyrinths existed at Nauplia, at Sipontum in Italy, at Val d'Ispica in Sicily, and elsewhere; and the name of labyrinth was applied to the subterraneous chambers of the tomb of Porsena, supposed to be that now existing as the Poggio Gazella, near Chiusi. Labyrinths called mazes were at one time fashionable in gardening, being imitations, by hedges or borders, of the Cretan; the best known in modern times being the Maze at Hampton court.

Herodotus, ii. 148; Diodorus, i. 61, 97; iv. 60, 77; Pausanias, i. 27; Strabo, x. 477, xviii. 111; Plutarch, *Theseus*, 15; Pliny, *N. H.*, xxvi. 19, 3, 83; Isidorus, *Orig.*, xv. 2, 6; Höck, *Creta*, i. 447; Prokesch, *Denkw.*, i. 606; Duc de Luynes, *Annali*, 1829, 364; Lepsius, *Einleit.*, p. 268.

LABYRIN'THODON, a genus of gigantic sauroid batrachians, found in the new red sandstone measures of Great Britain and the continent. The remains of several species have been described, but all so fragmentary that no certain restoration of the genus can yet be made. The head was triangular, having a crocodilian appearance both in the shape and in the external sculpturing of the cranial bones, but with well-marked structural modifications in the vomer, and in the mode of attachment of the head to the atlas, that stamp it with a batrachian character, conspicuous above the more apparent saurian resemblances. The mouth was furnished with a series of remarkable teeth, numerous and small in the lateral rows, and with six great laniary teeth in front. The bases of the teeth were anchylosed to distinct shallow sockets. Externally they were marked by a series of longitudinal grooves, which correspond to the inflected folds of the cement. The peculiar and characteristic internal structure of the teeth is very remarkable, and to it these fossils owe their generally accepted generic name of labyrinthodon (labyrinth-tooth). The few and fragmentary bones of the body of the animal exhibit a combination of batrachian and crocodilian characters, leaning, however, on the whole, more to the first type. In the same deposits there have been long noticed the prints of feet, which so much resembled the form of the human hand that Kaup, their original describer, gave the generic name of cheirotherium to the great unknown animals which produced them. From the fore being much smaller than the hind foot, he considered that they were the impressions of a marsupial; but this relative difference in the feet exists also in the modern batrachians; and the discovery of the remains of so many huge animals belonging to this order, in these very strata, the different sizes of which answer to the different footprints leave little doubt that the cheirotherian footprints were produced by labyrinthodont reptiles.

LAC, in the East Indies, signifies a sum of 100,000 rupees. A lac of *government rupees* is equal to £9,270 sterling; a lac of *Sicca rupees*, which in some places are also in very general use, is equal to £9,898 sterling. One hundred lacs, or ten millions of rupees, make a *crore*.

LAC, the general name under which the various products of the lac insect (*coccus lacca*) are known. The curious hemipterous insect which yields these valuable contributions to commerce is in many respects like its congener the cochineal insect (*coccus cacti*), but

it also differs essentially from it: the males alone, and those only in their last stage of development, have wings, therefore the whole life of the creature is spent almost on the same spot. They live upon the twigs of trees, chiefly species of butea, ficus, and croton, and soon entomb themselves in a mass of matter, which oozes from small punctures made in the twigs of the tree, and which thus furnishes them with both food and shelter. It is said that to each male there are at least 5,000 females, and the winged males are at least twice as large as the females. When a colony, consisting of a few adult females and one or two males, find their way to a new branch, they attach themselves to the bark, and having pierced it with holes, through which they draw up the resinous juices upon which they feed, they become fixed or glued by the superfluous excretion, and after a time die, forming by their dead bodies little domes or tents over the myriads of minute eggs which they have laid. In a short time the eggs burst into life, and the young, which are very minute, eat their way through the dead bodies of their parents, and swarm all over the twig or small young branch of the tree in such countless numbers as to give it the appearance of being covered with a blood-red dust. They soon spread to all parts of the tree where the bark is tender enough to afford them food, and generation after generation dwells upon the same twig until it is enveloped in a coating, often half an inch in thickness, of the resinous exudation, which is very cellular throughout, the cells being the casts of the bodies of the dead females. During their lifetime they secrete a beautiful purple coloring matter, which does not perish with them, but remains shut up in the cells with the other results of decomposition.

The small twigs, when well covered, are gathered by the natives, and are placed in hot water, which melts the resinous matter, liberates the pieces of wood and the remains of the insects, and also dissolves the coloring matter. This is facilitated by kneading the melted resin whilst in the hot water; it is then taken out and dried, and is afterwards put into strong and very coarse cotton bags, which are held near enough to charcoal fires to melt the resin without burning the bags. By twisting the bags, the melted resin is then forced through the fabric, and received in thin curtain-like films upon strips of wood. This hardens as its surface becomes acted upon by the air, and being broken off in fragments, constitutes the shell-lac of commerce. The best shell-lac is that which is most completely freed from impurities, and approaches most to a light orange-brown color. If the coloring matter has not been well washed out, the resin is often very dark, consequently we find the following varieties in commerce—orange, garnet, and liver. Much that is squeezed through the bags falls to the ground without touching the sticks placed to catch it; small quantities falling form button-like drops, which constitute the *button-lac;* whilst larger ones, from 1 in. to 2 or 3 in. in diameter, constitute the *plate-lac* of commerce. That known as *stick-lac* is the twigs as they are gathered, but broken short for the convenience of packing.

Below the lac-bearing trees there is always a very considerable quantity of the resin in small particles, which have been detached by the wind shaking and chafing the branches; this also is collected, and constitutes the seed-lac of our merchants.

The water in which the stick-lac is first softened contains, as before mentioned, the coloring matter of the dead insect. This is strained and evaporated until the residue is a purple sediment, which, when sufficiently dried, is cut in small cakes about 2 in. square, and stamped with certain trade-marks, indicating its quality. These are then fully dried, and packed for sale as *lac-dye,* of which large quantities are used in the production of scarlet cloth, such as that worn by our soldiers; for this purpose, lac-dye is found very suitable.

The lac insect is a native of Siam, Assam, Burmah, Bengal, and Malabar; the lacs and lac-dye come chiefly from Bombay, Pegu, and Siam. During the year 1876 nearly 5,000 tons of the different kinds of lac were exported into Great Britain. The annual consumption of lac-dye amounts to about 1,200,000 lbs.

As we have no strictly analogous resin from the vegetable kingdom, not even from the lac-bearing trees, it may be assumed that the juices of the trees are somewhat altered by the insects. The best analyses show that shell-lac contains several peculiar resins. The great value of the lacs is found in their adaptability for the manufacture of varnishes, both in consequence of their easy solubility, and also because of the fine, hard coating, susceptible of high polish, which they give when dry. The well-known "French polish" is little more than shell-lac dissolved in alcohol; and a fine thin varnish made of this material constitutes the lacquer with which brass and other metals are coated, to preserve their polish from atmospheric action.

All the varieties of lac are translucent, and some of the finer kinds, which are in flakes not much thicker than writing-paper, are quite transparent, and all, as before stated, are colored various shades of brown, from orange to liver. Nevertheless, if a quantity of shell-lac be softened by heat, it may, by continually drawing it out into lengths, and twisting it, be made not only quite white, but also opaque; in this state it has a beautiful silky luster; and if melted and mixed with vermilion, or any other coloring matter, it forms some of the fancy kinds of sealing-wax: the more usual kinds are, however, made by merely melting shell-lac with a little turpentine and camphor, and mixing the coloring matter. Shell-lac has the property of being less brittle after the first melting than after subsequent meltings; hence the sealing-wax manufactured in India has always had a high reputation, and hence also the extreme beauty and dura-

bility of those Chinese works of art in lac, some of which are very ancient. These are usually chow-chow boxes, tea-basins, or other small objects made in wood or metal, and covered over with a crust of lac, colored with vermilion, which, whilst soft, is molded into beautiful patterns. So rare and beautiful are some of these works that even in China they cost almost fabulous prices.

LACAILLE, Nicolas Louis, l'Abbe de, 1713–62; b. France. Educated for a priest, he renounced his vocation to devote himself to astronomy. Studying alone and without observatory, at the age of 23 he surprised men of learning by his advancement. In 1736 he became connected with the royal observatory, and continued in distinguished astronomical service till death. In 1750 he was placed in charge of an expedition to the cape of Good Hope to make observations of importance from that point; in connection with which he addressed a circular letter to all the great astronomers of other countries to unite with him on a basis of observations laid down by him. Later, his work traversed nearly every department of astronomical science, and subsequent progress in astronomy has served to show the wonderful accuracy of Lacaille. His published works are numerous and of the highest rank of his time.

LACANDO'NES, an Indian tribe of Central America. Their territory formerly embraced a large part of n.w. Guatemala, Chiapas, and Tobasco; but they appear now to be confined chiefly to the fastnesses of the Chico mountains. They were formerly aggressive and cruel, and did much to retard the prosperity of the European colonies. They have intermingled with the Choles and Manches, and are now shy and timid. They speak a dialect of the language of the Mayas of Yucatan, of which they are probably an offshoot. They are subject to the laws of Guatemala, but preserve the religion and habits of their forefathers; and their territory, the full extent of which is somewhat uncertain, remains in its ancient condition. The story which the cura of Quiché told Mr. Stephens, that they had large cities and towns and great temples, is incredible.

LAC'CADIVES (called by the natives *Lakara-Divh*, i.e., the Lakara islands), a group of islands in the Arabian sea, discovered by Vasco de Gama in 1499, lie about 150 m. to the w. of the Malabar coast of the peninsula of Hindustan. They extend in n. lat. between 10° and 12°, and in e. long. between 72° and 74°, and are 17 in number. Being of coral formation, they are generally low, with deep water immediately around them, and are therefore all the more dangerous to navigators. Pop. 7,000; area, 744 sq.m.; chief productions, coir, jaggery, rice, cocoa, and betel nuts, sweet potatoes, and cattle of a small breed. The inhabitants, who are called *Moplays*, are of Arabian origin, and in religion follow a sort of Mohammedanism. Since 1875 the islands are dependencies of Great Britain, having been then annexed to the province of Madras.

LACE, an ornamental fabric of linen, cotton, or silk thread, made either by the hands, somewhat after the manner of embroidery, or with machinery. The manufacture of lace by hand is an operation of exceeding nicety, and requires both skill and patience of no ordinary kind, and the best productions of this fabric surpass all other applications of textile materials in costliness and beauty.

Whether the ancients really had any knowledge of lace-making, excepting gold-lace, which will be mentioned at the end of this article, is not known, nor is it known with any certainty when this art came into practice in Europe; but there is good reason to suppose that *point-lace*, the oldest variety known, was the work of nuns during the latter half of the 14th and the beginning of the 15th centuries. This point-lace is very characteristic, and is truly an art production. The artistic character of the patterns, and the wonderful patience and labor shown in carrying them out, places them, as female productions, on a parallel with the decorative works in stone, wood, and metal of the monks. They indicate no tiresome efforts to copy natural objects, but masterly conceptions of graceful forms and tasteful combinations. The exact figures of the pattern were cut out of linen, and over these foundation-pieces, as they may be called, the actual lace-work was wrought by the needle, with thread of marvelous fineness, and with such consummate art that the material of the foundation is quite undiscoverable under the fairy-like web which has been woven over it. These portions of the fabric were then joined together by connecting threads, each of which, like the broader parts, consists of a foundation and lace-work covering; the former being a mere thread, often of exceedingly fine yarn; the latter being a sort of loop-work like the modern crochet. The wonderful durability of point-lace is attested by the fact that it is not uncommon in our most choice collections, although the art is supposed to have been lost about the beginning of the 16th c., when a more easily made, and consequently cheaper, style of point-lace, displaced the older and more artistic kind.

The point-lace of the second period, though always very beautiful, was deficient in solidity and in purity of design; moreover, it bears indications of having been copied from patterns, whilst the older kind was evidently the carrying out of artistic thoughts, as they were conceived, in the original material, the worker and the designer being the same person. It was during this period that the pillow was first used, and it is most probable that the use of patterns led to the application of the pillow. First, the lace would be worked on the pattern, to insure correctness, where the worker was merely a copyist; then it would soon become evident that if the pattern were so arranged as to

avoid shifting, the facilities of working would be greatly increased; and it has been suggested that the pattern pinned to the pillow, and the thread twisted round the pins, to prevent raveling when not in use, suggested the net-work which afterwards became a leading feature in the fabric.

The invention of pillow-lace has been claimed by Beckmann, in his quaint way, for one of his countrywomen. He says: "I will venture to assert that the knitting of lace is a German invention, first known about the middle of the 16th c.; and I shall consider as true, until it be fully contradicted, the account given us that this art was found out before 1561, at St. Annaberg, by Barbara, wife of Christopher Uttmann. This woman died in the 61st year of her age, after she had seen 64 children and grandchildren; and that she was the inventress of this art is unanimouly affirmed by all the annalists of Saxony." Whether she invented, or merely introduced the art, cannot now be proved, but certain it is, that it soon became settled in Saxony, and spread thence to the Netherlands and France. Even to the present day, we occasionally hear of "Saxon bone-lace," a name which was given to indicate the use of bone-pins, before the introduction of the common brass ones.

It will readily be supposed that an art depending so much on individual skill and taste, would be likely to vary exceedingly; nevertheless, all the varieties resolve themselves into few well-marked groups, under three distinct classes. The first class is the *guipure*, which comprises all the true needle-worked lace, whether ancient or modern; its varieties are: *rose-point*, in which the figures are in high relief, having a rich embossed appearance; *Venetian-point, Portuguese-point, Maltese-point;* in all of these the pattern is flatter than in the *rose-point, point d'Alençon*, and *Brussels-point.* The last two are still made, the modern point d'Alençon quite equaling in beauty and value that made in the middle of the 17th c., when its manufacture was introduced by the celebrated Colbert, chief minister of Louis XIV. The point d'Alençon has very distinctive characteristics. When the pattern is once designed, each portion may be worked by a separate person, and the various figures are then connected by a groundwork of threads, which are so passed from one figure to another as to represent a web of wonderful delicacy and regularity: small spots or other figures are here and there skillfully worked in where the threads cross each other; these are called *modes*, and not only add much to the strength of the fabric, but greatly increase its richness of effect. In all these varieties, but two kinds of stitches are employed, and these differ chiefly in the greater or less closeness of the threads employed. First, a series of threads are laid down all in one direction, so as to cover the pattern, and then a certain number of these are taken up and covered by loops of the cross-stitches, or are more lightly held together.

The second class is *pillow-lace*, sometimes called cushion or bobbin lace, from the pillow or cushion being used to work the pattern upon, and the various threads of which the figures are made up, each being wound upon a bobbin, usually of an ornamental character, to distinguish one from the other. The pattern, on parchment or paper, being attached to the *pillow* or cushion, pins are stuck in at regular intervals in the lines of the pattern, and the threads of the bobbins are twisted or plaited round them so as to form the net-work arrangement which is characteristic of this class of lace, the patterns, or figured portions, being worked out by a crossing of threads, which, although actually plaiting, gives the effect of weaving. The varieties of this lace are: *Spanish, grounded Spanish, Saxony Brussels, Flemish Brussels, Mechlin, Valenciennes, Dutch, Lisle, Chantilly, silk and cotton blonde, Limerick, Buckinghamshire*, and *Honiton.* The last has of late years become the most beautiful of all the varieties made in Great Britain. The Irish or Limerick lace has also taken a high position.

The third class is machine-made lace, which, by its wonderful improvement and rapid development, has worked a complete revolution in the lace trade, so that the prices formerly obtained for hand-made lace can no longer be commanded, whilst machine lace, of great beauty, has become so cheap and plentiful as to be worn by all classes. It has been mentioned before that the use of the pillow led to the introduction of net as the ground-work for lace figures, and it was to the manufacture of this so-called *bobbin-net* that the machinery was first applied (see BOBBIN-NET). The lace-machine, or *frame*, as it is technically called, is so complicated that it would be hopeless to convey any really intelligible appreciation of it without a voluminous description of all its parts. One or two points of chief importance may, however, remove any difficulty in understanding its general principles. First, then, as in the loom (see LOOM), there is a series of warp-threads, placed, however, perpendicularly instead of horizontally, and not so close as in ordinary weaving, the space between each being sufficiently wide to admit of a shilling passing edgeways between them. Behind these threads, and corresponding to the inter-spaces, is a row of ingeniously constructed flat bobbins or reels resting in an arrangement called a *comb-bar* or *bolt-bar.* These are so placed that, with the first movement of the machine, each bobbin, which carries its thread with it, passes through two of the parallel and perpendicular threads of the warp, and is lodged in another and similar bolt-bar in front of the warp. But this front bolt-bar, besides an advancing and receding motion, has another movement, called *shogging*—from right to left. When it receives a bobbin by its forward motion, it draws back, bringing the bobbin and thread through two of the upright threads; it then *shogs* or moves to one side, and goes forward again, taking the thread through the next two warp-threads, and lodging the bobbin on the back bolt-

bar again, one distance beyond its last space; this it recovers by the next movement, and it again passes through the first space, to be again received by the front bolt-bar. By these movements the bobbin-thread is twisted quite round one upright thread of the warp; another movement then shifts the bobbin, so that it will pass through the next pair of upright threads, and so carry on its work, the warp-threads moving at the same time, unwinding from the lower beam, and being rolled on the upper one. There being twice as many bobbins as there are threads in the warp, each bolt-bar having a set which it exchanges with the other, and all being regulated with great nicety, a width of lace is made in far less time than has been required to write this short description. The various additions to, and variations upon, these operations, which only apply to bobbin-net, for the production of patterns, are so numerous and complicated—each pattern requiring new complications—that it will be useless attempting to describe them; suffice it to say, they all depend upon the variations which can be given to the movements of the flat, disk-like bobbins.

The history of the lace-machine is not very clear; it is said to have been originally invented by a *frame-work* knitter of Nottingham, from studying the lace on his wife's cap; but it has been continually reeeiving improvements, amongst which those of Heathcote in 1809 (the first to work successfully), Morley in 1811 and 1824, and those of Leaver and Turton, and of Clark and Marl, all in 1811. The manufacture of lace by machinery is chiefly located in Nottingham, whence it is sent to all parts of the world; but we have no means of knowing to what extent, for, with that strange perversity which distinguishes our statistical administration, only *thread-lace* is mentioned in the lists of exports, whilst our vast produetion of cotton-lace is mixed up with the returns of calico and other fabrics of that material.

Gold-lace and *silver-lace*, properly speaking, are laces woven, either by the hand or by machinery, from exceedingly fine threads of the metals, or from linen, silk, or cotton threads whieh are coated with still finer threads of gold or silver; but in this country it is too common to designate as gold or silver lace, not only that which is rightly so called, but also fringe made of these materials, and also gold and silver embroidery, such as is seen on state robes and trappings, and upon some eeclesiastical dresses, etc. Gold-lace is made in London, but considerable quantities of that used for decorating uniforms and other dresses, etc., in this country, is obtained from Belgium, where it is an important branch of manufacture. France supplies much of the gold and silver thread used, and excels all other countries in its production, in some of the more artistic varieties of gold and silver laee and embroidery. Italy has lately shown great taste and skill. The works of Luigi Martini of Milan have, in this respect, attained great celebrity, and are said to produce about £16,000 worth per annum.

LACE-BARK TREE, *Lagetta lintearia*, a tree of the natural order *thymeleaceæ*, a native of the West Indies. It is a lofty tree, with ovate, entire, smooth leaves, and white flowers. It is remarkable for the tenacity of the fibers of its inner bark, and the readiness with whieh the inner bark may be separated, after maceration in water, into layers resembling lace. A governor of Jamaica is said to have presented to Charles II. a cravat, frill, and ruffles made of it.

LACEDÆ'MON. See SPARTA, *ante*.

LACE-LEAF. See LATTICE LEAF.

LACÉPÈDE, BERNARD GERMAIN ÉTIENNE DE LAVILLE, Count de, an eminent naturalist and elegant writer, was b. of a noble family, Dec. 26, 1756, at Agen. Having early devoted himself to the study of natural history, in which he was greatly encouraged by the friendship of Buffon, he was appointed curator of the cabinet of natural history in the royal gardens at Paris. This office he held till the revolution, when he became professor of natural history, and also entered upon a political career, in which he rose to be a senator in 1799, a minister of state in 1809, and, after the return of the Bourbons, a peer of France, although he had previously been one of the most zealous adherents of Bonaparte. He died of small-pox at his mansion of Epinay, near St. Denis, Oct. 6, 1825. A collective edition of his works was published in 1826. Among them are works on the natural history of reptiles, of fishes, and of the cetacea, a work on the natural history of man, and one entitled *Les Ages de la Nature*. His work on fishes (5 vols. 1798–1803) is the greatest of his works, and was long unrivaled in that department of zoology, although it has now been in a great measure superseded. Lacépède, who was a highly accomplished musician, was the author of a work entitled *La Poétique de la Musique* (2 vols. 1785) and of two romances intended to illustrate social and moral principles. He was an amiable man, extremely kind, delighting in domestic life, and very simple, and almost abstemious, in his habits.

LA CERDA, the name of an ancient Spanish family which traced its genealogy to Fernando, eldest son of Alfonso X. of Castile, called La Cerda, or the horse's mane, from a tuft of hair that grew upon his shoulders. This prince married Blanche, a daughter of St. Louis of France, and died in 1275, leaving two sons, Alfonso and Fernando, heirs to the crown. But Sancho, son of Alfonso X., claimed the succession, and procured his proclamation before his father died. Alfonso's wife, Yolande, escaped from Castile with her grandchildren, finding a protector for them in her brother,

Don Pedro, king of Aragon, or in their uncle, Philip the bold of France. These sovereigns conspired to keep the young princes prisoners in Aragon, and their grandmother returned to Castile. Blanche, the mother of the princes, protested in vain against their imprisonment. When Alfonso X. died in 1284 he left a will making Alfonso and Fernando de la Cerda his heirs, and unconditionally disinheriting Sancho, by whom his life had been so much imbittered. But Sancho was already on the throne, and the rightful heirs could not dispossess him. At length the king of Aragon, wishing to vex the king of Castile, set the princes of La Cerda at liberty, and they were proclaimed at Badajos and Talavera; but they were unable to maintain their pretensions and retired into France in the reign of Philip the fair, where they concerted plans to enforce their claims. But their plans failed, and at length a son of Sancho succeeded to the throne. The kings of Portugal and Aragon, being requested to act as mediators, decided in favor of the son of Sancho, but stipulated that three cities should be ceded to Alfonso to enable him to maintain the dignity of his royal birth. Alfonso accepted these hard terms and was thenceforth known as the Disinherited. He died in 1325, leaving two sons, one of whom, Carlos de la Cerda, known also as Charles of Spain, was appointed by king John in 1350 constable of France. But a rivalry springing up between Charles of Spain and Charles the bad, king of Navarre, the former, while on a visit to his young wife in Normandy in 1354, was assassinated by agents in the pay of the latter. In 1425 the house of La Cerda became extinct, but it is still represented in the female line by the dukes of Medina-Cœli.

LACER'TA and **LACER'TIDÆ**. See LIZARD.

LACEY, WILLIAM B., D.D., 1781–1866; a missionary of the Protestant Episcopal church in Chenango co., N. Y., in 1818, afterwards for 20 years rector of St. Peter's church at Albany, and professor of theology in the university of Pennsylvania, in Philadelphia. He was the author of several text-books on rhetoric and moral philosophy, for the use of schools. From 1856 to 1866 he revised a *History of the English Church Prior to the Time of the Monk Augustin*, and some of his most valued essays and sermons, which he intended to publish.

LACHAISE, FRANCIS D'AIX DE, a Jesuit, b. of a noble family, Aug. 25, 1624, in the castle of Aix, now in the department of Loire, was a provincial of his order when Louis XIV. selected him for his confessor on the death of father Ferrier in 1675. His position was one of great difficulty, owing to the different parties of the court, and the strife between Jansenists and Jesuits. In the most important questions of his time, father Lachaise avoided extreme courses. A zealous Jesuit, and of moderate abilities, he yet sustained among his contemporaries the reputation of a man of mild, simple, honorable character. Mme. Maintenon could never forgive him the little zeal with which he opposed the reasons urged against the publication of her marriage with the king; but during the 34 years that he filled his office of confessor, he never lost the favor of the king. He was a man of some learning, and fond of antiquarian pursuits. He died Jan. 20, 1709.—Louis XIV. built him a country house to the w. of Paris, the large garden of which was in 1804 converted into a burial-place, and is known as the *Père-la-Chaise*.

LACHE, in English law, is a word used (from Fr. *lâcher*, to loosen) to denote negligence or undue delay, such as to disentitle a party to a particular remedy, or to relief. In Scotland, the word *mora* is often used to denote undue delay.

LACHES (*ante*). The courts will not charge with laches an infant or married woman or insane person, or any party under legal disability. Equity will not, in general, relieve in favor of a party guilty of laches; but it is otherwise where the rights of the party seeking relief were doubtful or he was ignorant of them.

LACH'ESIS, a genus of serpents of the rattlesnake family (*crotalidæ*), but differing from rattlesnakes in having the tail terminated with a spine instead of a rattle, and in having the head covered with scales, and not with plates. The species are all natives of the warm parts of America, where some of them are among the most dreaded of venomous serpents. They are usually seen coiled up, with keen glaring eyes, watching for prey, on which they dart with the swiftness of an arrow, and then coiling themselves up again, wait quietly till the death-struggle of the victim is over. Some of them attain the length of 7 feet. They are said to be apt to attack men, even when not attacked or threatened.

LA CHINE. See CHINE, LA, *ante*.

LA'CHISH, a city of the Amorites, in s. Palestine. The king of Lachish and four others were routed by Joshua at Bethhoron and Lachish was destroyed. This town was remarkable for its strength. It was rebuilt, fortified, and garrisoned by Rehoboam, and was regarded after that time as one of the strongest fortresses of the kingdom of Judah. It was attacked by Sennacherib on his way from Phenicia to Egypt, and probably taken, though this is not stated in the Bible or Josephus, but its siege is depicted on the slabs found by Layard in one of the chambers of the palace at Kouyunjik. After the captivity it was reoccupied by the Jews. No modern vestige of the site or name has been discovered.

LACH'LAN, a river of e. Australia, rises in New South Wales, to the westward of the Blue mountains, and, after a course of 400 m., with the characteristics of the Darling (q.v.) on a smaller scale, joins the Murrumbidgee, which itself a little further down enters the Murray. The former of these two points of confluence is in lat. 34° 30′ s., and long. 144° 10′ east.

LACHMANN, KARL, a celebrated German critic and philologist, was b. Mar. 4, 1793, at Brunswick, studied at Leipsic and Göttingen, became a professor in the university of Königsberg in 1816, and at Berlin in 1827. He died Mar. 13, 1851. Lachmann's literary activity was extraordinary. He was equally devoted to classical subjects and to those of old German literature, and illustrated both by a profound and sagacious criticism. Among his most important productions are his editions of the *Nibelungenlied*, the works of Walter von der Vogelweide, Propertius, Catullus, Tibullus, and the New Testament (Berl. 1831; 3d edit. 1846), of which a larger edition, with the the Vulgate translation, appeared in 2 vols. (Berl. 1846 and 1850). The design of the last of these works was to restore the Greek text as it existed in the eastern church in the 3d and 4th centuries; and Lachmann thought himself more likely to attain that end by attaching weight only to such MSS. as exist in uncials (q.v.).

LACH'RYMÆ CHRIS'TI, a muscatel wine of a sweet but piquant taste, and a most agreeable bouquet, which is produced from the grapes of mt. Somma, near Vesuvius. There are two kinds, the white and the red, the first being generally preferred. The demand for this wine being greater than the supply, large quantities of the produce of Pozzuoli, Istria, and Nola are sold under this name. A similar wine is produced in many islands of the archipelago, as Candia, Cyprus, etc.

LACH'RYMAL ORGANS, THE, are sufficiently described in the article EYE. There are, however, certain diseases to which they are liable, which require a brief notice.

There may be a deficient secretion of tears, an affection for which the term *xerophthalmia* has been invented. It may be palliated by keeping the cornea constantly moist with glycerine by means of an eye-cup. Or there may be an over-secretion of tears, so that they *run down the cheeks.* This affection is termed *epiphora*, and must not be confounded with the *stillicidium lachrymarum*, or overflow of tears that arises from an obstruction of the channels through which they pass into the nose. It is common in scrofulous children, and should be treated with gentle aperients, such as rhubarb combined with bicarbonate of soda, and tonics, such as the citrate of iron and quinine.

Obstruction of the nasal duct is generally caused by a thickening of the mucous membrane that lines it, and is a not uncommon affection, especially in scrofulous young persons. There is a feeling of weakness of the eye on the affected side, and tears run down the cheek, while the nostril on that side is unnaturally dry. The lachrymal sac is distended with tears, and forms a small tumor by the side of the root of the nose. On pressing this tumor, tears and mucus can be squeezed backwards through the puncta, or downwards into the nose, if the closure is only partial. This affection often leads to *inflammation of the sac*, or to the formation of a fistulous aperture at the inner corner of the eye, communicating with the lachrymal sac, and known as *fistula lachrymalis.* This fistulous aperture is caused by the bursting of an abscess, arising from inflammation of the sac. It is generally surrounded by fungous granulations (popularly known as *proud flesh*), and the adjacent skin is red and thickened from the irritation caused by the flow of tears. In these cases, the sac must be opened by a puncture, and a style (a silver probe about an inch long, with a head like a nail) should be pushed through the duct into the nose. The retention of this instrument causes the duct to dilate, so that the tears flow by its side. The flat head of the style lies on the cheek, and both keeps the instrument in its place and facilitates its occasional removal for the purpose of cleansing. Sometimes it is necessary that the instrument should be worn for life, but in less severe cases the duct remains permanently dilated, and a cure is effected in a few months.

LACH'RYMATORY, the name applied to small bottles found in ancient tombs, and supposed to contain the tears of the deceased's friends. These phials are made of glass or earthenware, with a long neck, and the mouth formed, as was thought, to receive the eye-ball. The figure of one or two eyes has sometimes been found impressed upon them. It is more probable, however, that they contain aromatic balsam, or such liquids as were used for preserving the body.

LACKAWANNA : co., Penn. See page 894.

LACKAWAN'NA RIVER, rises in Susquehanna co., Penn., and flows s. to Carbondale, whence it runs s.w. in Lackawanna co., entering the Susquehanna at Pittston. Rich mines of anthracite coal are found in the valley of this stream. Scranton and Carbondale are the principal towns upon its banks. The s.w. part of the Lackawanna valley opens into that of Wyoming, and the two together form one long, narrow valley nearly coinciding with the Wyoming and Lackawanna coal basin, which is over 50 m. long, and passes through Lackawanna co. in a n.e. and s.w. direction. Nearly half of all the anthracite mined in the United States is taken from this basin.

LACLEDE, a co. in s.w. central Missouri; drained in part by the Gasconade and its Osage fork, and in part by the Grand Auglaize, which rises in it; about 750 sq.m.; pop. '80, 11,524. The surface is hilly, and extensively covered with forests of hard

timber. Wheat, corn, oats, and pork are the chief productions. The county is intersected by the St. Louis and San Francisco railroad. Valuation of real and personal property, $3,000,000. Capital, Lebanon.

. LACLÈDE, Pierre Liqueste, b. France; resident of New Orleans in 1762; grantee, under a charter from the director-general of the colony of Louisiana, of the exclusive right to trade in furs with the Indians on the Missouri river; organizer under that charter of the Louisiana fur company, and founder of the city of St. Louis, where he located the company's warehouses and stores, laid out a town, and named it in honor of his king. Louis XV.

LA CONDAMINE, Charles Marie de, 1701–74; b. Paris; educated at the university of Paris; entered the army in 1719; was present at the siege of Rosas, where he distinguished himself. He soon left the army and joined an expedition to explore the coasts of Asia and Africa. In 1735 he was sent by the academy of sciences, with Bouguer and others, to Peru to measure a meridianal arc for the purpose of determining the figure of the earth. He returned to France in 1743, and published accounts of the work of the commission in 1748 and 1749. His account of caoutchouc, published in 1751, was the cause of the introduction of this valuable substance into Europe. He became a member of the royal society of London in 1748, and in 1760 of the academy of sciences of Paris. He promoted inoculation for small-pox, and left a number of treatises on physics, natural history, and geography. He discovered the deflection of a plumb-line by the attraction of a mountain near by.

LACO'NIA, or Laconica. See Sparta, *ante*.

LACON'IC. The Spartans, or Lacedemonians (whose country was called Laconia), systematically endeavored to confine themselves to a sententious brevity in speaking and writing; hence the term *laconic* has been applied to this style.

LACORDAIRE, Jean-Baptiste Henri, the most distinguished of the modern pulpit-orators of France, was b. at Recey-sur-Ource, in the department Côte-d'Or, Mar. 12, 1802. He was educated at Dijon, where he also entered upon his legal studies; and having taken his degree, he transferred himself in 1822 to Paris, where he began to practice as an advocate in 1824, and rose rapidly to distinction. As his principles at this period were deeply tinged with unbelief, it was a matter of universal surprise in the circle of his acquaintance that he suddenly gave up his profession, entered the college of St. Sulpice, and in 1827 received holy orders. He soon became distinguished as a preacher, and in the college of Juilly, to which he was attached, he formed the acquaintance of the abbé Lamennais, with whom he speedily formed a close and intimate alliance, and in conjunction with whom, after the revolution of July, he published the well-known journal, the *Avenir*, an organ at once of the highest church principles and of the most extreme radicalism. The articles published in this journal, and the proceedings which were adopted in asserting the liberty of education, led to a prosecution in the chamber of peers in 1831; and when the *Avenir* itself was condemned by Gregory XVI., Lacordaire formally submitted, and for a time withdrawing from public affairs, devoted himself to the duties of the pulpit. The brilliancy of his eloquence, and the novel and striking character of his views, excited an interest altogether unprecedented, and attracted unbounded admiration. His courses of sermons at Notre Dame drew to that immense pile crowds such as had never been seen within the memory of the living generation, and had produced an extraordinary sensation even on the non-religious world, when once again Lacordaire fixed the wonder of the public by relinquishing the career of distinction which was open to him and entering the novitiate of the Dominican order in 1840. A short time previously, he had published a memoir on the re-establishment of that order in France, which was followed, after his enrollment in the order, by a life of its founder, St. Dominic; and in 1841 he appeared once again in the pulpit of Notre Dame, in the well-known habit of a Dominican friar. From this date he gave much of his time to preaching in various parts of France. In the first election which succeeded the revolution of 1848, he was chosen one of the representatives of Marseilles, and took part in some of the debates in the assembly; but he resigned in the following May, and withdrew entirely from political life. In 1849, and again in 1850 and 1851, he resumed his courses at Notre Dame, which, together with earlier discourses, have been collected in 3 vols., under the title of *Conferences de Notre Dame de Paris*, 1835–50. His health having begun to decline he withdrew in 1854 to the convent of Soreze, where he died in 1861. In 1858 he wrote a series of *Letters to a Young Friend*, which have been much admired; and in 1860, having been elected to the academy, he delivered what may be called his last address, a memoir of his predecessor, M. de Tocqueville. A collected edition of his works appeared in Paris in 1872; his memoirs by Montalembert in 1862.

LACORDAIRE, Jean Théodore, 1801–70; the brother of père Lacordaire; was educated for the law, but became a naturalist from predilection. He traveled extensively in South America, prosecuting investigations in natural history, and on his return to France contributed to the various scientific publications, being also attached to the Paris daily press. Having been appointed to the chair of zoology in the university of Liége, in 1850 he was made dean of the faculty of sciences. He wrote *Faune Entomol-*

ogique des Environs de Paris; Histoire Naturelle des Insectes; Genera des Coléoptères; and *Introduction à l'Entomologie.*

LACQUER is a varnish prepared for coating metal-work (see LAC), usually polished brass. The formula usually employed is, for gold color: alcohol, 2 galls.; powdered turmeric, 1 lb.; macerate for a week, and then filter with a covered filter, to prevent waste from evaporation; to this add, of the lightest-colored shell-lac, 12 oz.; gamboge, 4 oz.; gum-sandarach, 3½ lbs. This is put in a warm place until the whole is dissolved, when 1 quart of common turpentine varnish is added. A red lacquer, prepared by substituting 3 lbs. of annotta for the turmeric, and 1 lb. of dragon's blood for the gamboge, is extensively used.

LACQUERING, the art of coating metal with varnish. The term has also a wider signification, and is made to apply to the process by which some varieties of goods in wood and papier-mâché are also coated with layers of varnish, which are polished, and often inlaid with mother-of-pearl, etc. See PAPIER-MÂCHÉ. It would appear, from the very fine specimens from Japan in the international exhibition, that the Japanese excel in the art of producing articles of exquisite thinness and delicacy. The varnish used by the Chinese and Japanese appears to be the same, and is a natural secretion which flows from incisions in the stem of the varnish-tree (q.v.). Usually, the oriental lacquered work is tastefully ornamented with designs painted in gold, or with inlaid shell-work. The Japanese have carried this art so far as to apply it to their delicately beautiful china, some of which is lacquered and inlaid with mother-of-pearl, forming landscapes and other designs.

LAC QUI PARLE, a co. in w. Minnesota, bordering on Dakotah, bounded on the n.e. by the Minnesota, and intersected by the Lac Qui Parle river; pop. '80 4,907. The surface is nearly level and the soil fertile. Capital, Lac Qui Parle.

LACRETELLE, PIERRE LOUIS, 1751–1824; b. France; educated for the practice of law he drifted, by the philosophical tendency of his mind, into authorship, and first became known by the humanitarian direction of his essays. In Paris he was made one of the editors of the *Grand Répertoire de Jurisprudence.* In 1784 he published several essays, one of which, a discourse on the prejudices which attach to infamous punishment, was crowned by the academy of Metz. Robespierre was one of the competitors for the same honor. Lacretelle was intimately associated with La Harpe in the publication of the *Mercure de France*, in which his writings attracted the attention and friendship of D'Alembert, Condorcet, Turgot, and Malesherbes. At the beginning of the French revolution he was a member of the national assembly, voted for the new constitution making France a constitutional monarchy, and stubbornly adhered to it through the later developments of the revolution by which it was overturned, adopting for his motto: "The constitution entire, and nothing but the constitution." Voting against the accusation of Lafayette, he was accused of royalism and left Paris to save his head. Under the directory and the empire he was inconspicuously industrious in literary labor as a member of the institut. In 1817 he associated with Benj. Constant and others to establish the *Minerve Francaise.* This was suppressed by the government of Louis XVIII. Soon after, some essays, too liberal and incisive, procured him a month in prison. Being a man of estate, he published his own essays when their character made it unsafe for publishers to undertake them. His writings exhibit an earnest desire to ameliorate the cruelties of law and to promote education. His complete works were published in Paris in 1824 in 6 vols. quarto.

LA CROIX, APOLLINE BIFFE, wife of Jules; actress and author, whose maiden name was Pauline Derfeuille. She is author of *Fleur de Sene et Fleur des Champs*, 1854; *Falcone*, 1856; and *Madame Berthe*, 1857.

LA CROIX, JULES, brother of Paul, b. in Paris, 1809; a poet, dramatist, and translator of dramatic compositions, and a novelist. His novels are not esteemed of a high order, but some of his plays have been crowned by use in the Theatre Français. They are *Le Testament de César*, *Valéria*, and *Œdipus Rex;* the latter, a literal translation from Sophocles, receiving the grand prize of the French academy, 10,000 fr., in 1862. He has made a translation of Shakespeare's *King Lear*, which has been successfully played at the theatre de l'Odeon. In 1872 La Croix published a volume of poems, of great vigor of style, on the episodes in France incident to the German war, entitled *Invasion, Commune, Souvenirs sans Pardon.*

LA CROIX, PAUL, b. Paris, 1806; a French author who has written, under the name of "Le Bibliophile Jacob," a large number of romances and books of the manners and customs of the middle ages. In 1855 he was appointed keeper of the arsenal library, and he has edited the *Revue Universelle des Arts* since 1854. His work entitled *Histoire du 16e siècle en France* was published in 1834. Among his later historical books are: *Un Mobilier Historique des XVIIe et XVIII. siècles* (1865); *Arts au Moyen Age et à l'Époque de la Renaissance* (1868); *Mœurs Usages et Costumes au Moyen Age et à l'Époque de la Renaissance* (1871); and *La vie Militaire et la vie Religieuse au Moyen Age* (1872). He d. 1884.

LACROIX, SYLVESTRE FRANÇOIS, a French mathematician, was b. in Paris in 1765; and though of poor parentage, succeeded through indomitable zeal in acquiring so great a knowledge of elementary mathematics that, at the age of 17, he obtained, by the

recommendation of Monge (q.v.), the professorship of mathematics in the naval school at Rochefort. He was successively promoted to a corresponding position in the ecole normale, ecole polytechnique, the Sorbonne, and the college of France; was chosen member of the academy of sciences in room of Borda in 1799; and throughout his long life zealously pursued his duties as a teacher, widely disseminating a taste for the mathematical sciences by the numerous elementary works which were the fruit of his leisure hours. Lacroix is not remarkable for original discovery in mathematical science; but he deserves to be gratefully remembered for his *Traité du Calcul Différentiel et Intégral* (Paris, 1797), a work on which he spent immense labor, in order to make it a complete and harmonious compilation of the results of all previous research. The value of such a work may be estimated by Laplace's statement, that it cost him 10 years' labor to supply for himself the want of such a work. Lacroix's other writings are treatises on arithmetic, algebra, geography, trigonometry, probabilities, land-surveying; geography, mathematical and physical, etc.

LA CROSSE, a co. in w. Wisconsin, bounded n.w. by Black river, w. by the Mississippi, and intersected by the La Crosse river; about 480 sq.m.; pop. '80, 27,072. The surface is undulating, and diversified with prairie and forest. It has a fertile soil, producing wheat, corn, oats, and hay. Lumber is extensively manufactured. The county is intersected by the Milwaukee and St. Paul, and the Chicago and North-western railroads. Valuation of real and personal property, $13,000,000. Capital, La Crosse.

LA CROSSE, a city of Wisconsin, capital of La Crosse co.; beautifully situated on the Mississippi, just below the mouth of the La Crosse river, about 40 m. below Winona and 150 m. above Dubuque; pop. '80, 14,505. It is the n. terminus of the Chicago, Dubuque and Minnesota railroad, and the e. terminus of the Southern Minnesota railroad. The Chicago, Milwaukee and St. Paul, and the Chicago and North-western railroads pass through the city. It contains the usual county buildings, 15 churches, a high-school, an opera house, a national bank, and 3 daily and 4 weekly newspapers, one of the latter printed in the Norwegian language. It is the seat of a Roman Catholic bishop, and has a convent and 2 orphanages. It has manufactories of agricultural implements, an engine and boiler factory, iron foundries, gas-works, lumber-mills, breweries, etc. Steamboat building is also carried on to some extent, and large quantities of grain, lumber, etc., are shipped thence.

LA CROSSE is the name of a field game played with a ball. The Iroquois Indians have been long accustomed to play it in Canada; and some of them exhibited their skill in the game in the presence of the prince of Wales, when he was in that colony in 1860. The game was introduced to this country by 18 of those Indians who came to play it in 1867; and in 1876 teams of Canadian gentlemen and Indians visited England and Scotland for the same purpose.

In what way La Crosse differs from golf, hockey, foot-ball, and other games, may be briefly explained. Every player is provided with a kind of large battledore. This consists of a long stick of light hickory, bent at the top like a bishop's crosier; strings of deer-skin are stretched diagonally across the hooked portion in different directions, forming a net-work—not so tightly as in a regular battledore or racket-bat, nor so loosely as to form a bag. As the battledore, called the *crosse*, is 5 or 6 ft. long, there is great leverage power in handling it. Only one ball is employed, made of india-rubber, and 8 or 9 in. in circumference. Posts or poles about 6 ft. high, with a small flag at the top of each, complete the equipment. The players divide themselves into two parties, the reds and the blues; their number, as well as the size of the play-field, are nearly optional, more players being needed as the area is larger. Red predominates in the dress of one party, and blue in that of the other, for facility in distinguishing colleagues from opponents. To prepare for the game, a red goal is set up at one end of the field, consisting of two small red flags on posts, about 6 ft. high and 6 ft. apart; a similar goal, but blue in color, is set up at the opposite end of the field. Now, the object of the game is for the blues to drive the ball through the red goal, and the reds to drive it through the blue goal; and each party, of course, strives to frustrate the plan of the other. The ball is not thrown by the hand, but is hooked up from the grass by the bent end of the crosse or battledore; it is borne on the netting horizontally, while the player runs, and is dexterously thrown off the crosse when the exigencies of the game require such a maneuver. No player is allowed to wear spiked shoes; but a good hold of the ground is obtained by wearing moccasins, which the Indians prefer, for the purpose to regular shoes.

In the arrangement of the men on each side, the *goal-keeper* defends the goal; *point* is the first man out from the goal; *cover-point* is a little in advance of point; *center* is in the center of the field; *home* is the player nearest to the opponents' goal; while the *fielders* comprise the rest of the players. Beginning near the center of the field, the players struggle to obtain a mastery over the ball, and convey it to the opponents' goal. When scooped up from the ground, it is carried horizontally on the crosse, the player running towards one of the goals, trying to elude the vigilance of his antagonists. If it seems prudent, he pitches the ball off his crosse towards a colleague, who may be in a better position to convey it towards the goal. The ball is not touched by the hand, except under special and clearly defined circumstances. If the ball be accidentally driven

through the red goal by one of the reds, the blues win the game; and *vice versâ*. The players must not strike, trip up, or grasp one another; nor must any one lay hold of the crosse of another. One player strikes the ball off an opponent's crosse with his own crosse, and not by any other means. Two players on the same side may fling or carry the ball consecutively.

It will thus be seen that there is a little of foot-ball, of hockey, and of racket in la crosse. The goals resemble those of foot-ball and hockey; the occasional struggle for the ball is like the "scrimmage" of foot-ball, though not so rough and dangerous; the general mode of play may be compared to hockey; while the battledore claims some resemblance to the racket-bat. There is nevertheless sufficient originality in the game to render it wholly a distinct one. La Crosse clubs have been established at Richmond, Blackheath, Glasgow, and other places in Great Britain.

LACS D'AMOUR, in heraldry, a cord of running knots used as an external decoration to surround the arms of widows and unmarried women, the *cordelier*, which differs but slightly from it, being used similarly with the shields of married women.

LACTAN'TIUS, in several MSS. designated Lucius Cœlius, or Cæcilius Firmianus Lactantius, an eminent Christian author, who flourished in the early part of the 4th century. He was of Italian descent, and studied at Sicca, in Africa, under the rhetorician Arnobius, and in 301 A.D. settled as a teacher of rhetoric in Nicomedia. He was invited to Gaul by Constantine the great (312–18 A.D.), to act as tutor to his son Crispus, and is supposed to have died at Treves about 325 or 330. Lactantius's principal work is his *Divinarum Institutionum*, libri vii., a production both of a polemical and apologetic character. A supposed tendency to Manicheism in his views and his Chiliasm have marred his reputation for pure orthodoxy. He attacks paganism and defends Christianity. Among his other writings are treatises *De Ira Dei* and *De Mortibus Persecutorum*. Some elegies have also been ascribed to him, but erroneously. His style is wonderful, if we consider the late age at which he wrote, and has deservedly earned for him the title of the *Christian Cicero*. He was, besides, a man of very considerable learning, but as he appears not to have become a Christian till he was advanced in years, his religious opinions are often very crude and singular. Lactantius was a great favorite during the middle ages. The *editio princeps* of this writer is one of the oldest extant specimens of typography. It was printed at Subiaco in 1465.

LACTEALS, The, or Chyliferous Vessels, are the lymphatic vessels (q.v.) of the small intestine. They were discovered in 1622 by Aselli (q.v.), and received their name from conveying the milk-like product of digestion, the chyle (q.v.), during the digestive process, to the thoracic duct (q.v.), by which it is transmitted to the blood. These vessels commence, as has been shown in the article Digestion, in the intestinal villi, and passing between the layers of the mesentery (q.v.), enter the mesenteric glands, and finally unite to form two or three large trunks, which terminate in the thoracic duct.

LACTHO, a province of Farther India, subject to the ruler of Cochin China; bounded s. by Lars, n. and e. by Tungquin, w. by China. It has been but imperfectly explored by Europeans, but is described by the Tungquinese as mountainous, rocky, and covered with jungle, destitute of navigable rivers, with the air pestilential and the water unwholesome. The numerous tribes of the interior are savages, governed by hereditary chiefs, and constantly at war with each other. The exports to Tungquin are buffaloes and cotton, and the imports from Tungquin are salt, salt-fish, oil, and silk stuffs for the chiefs. The medium of exchange is cowries. This province is said to contain many remarkable natural caves, which the natives used as temples. One is described as a mile across, through a mountain, and another as being entered under ground in a boat.

LAC'TIC ACID ($C_6H_5O_5$,HO), in its pure state is a transparent, colorless, or slightly yellow uncrystallizable, syrupy liquid, of specific gravity 1.215. It is devoid of odor, has a sharp, acid taste, and is soluble in all proportions in water, alcohol, and ether.

The best method of obtaining this acid is by dissolving 8 parts of cane-sugar in about 50 parts of water, and then adding 1 part of decaying cheese and 3 parts of chalk. If this mixture be set aside for two or three weeks at a temperature of about 80°, it becomes filled with a mass of crystals of lactate of lime, which must be purified by recrystallization, and treated with about one-third of their weight of sulphuric acid. The residue must be digested in alcohol, which leaves the sulphate of lime, and dissolves the lactic acid, which may be obtained pure on evaporating the solution. The mode in which the acid is produced in this process is described in the article Lactic Fermentation.

Lactic acid is also formed in many other ways; thus, it is a frequent product of the acidification of vegetable substances, and in this way is formed in *sauer-kraut*, in malt vinegar, and in the acid fermentation that takes place during the manufacture of wheat-starch. It occurs ready formed in certain plants, and is very largely produced in the animal body. It is found either free or combined, or both, in the gastric juice (although not constantly), in the contents of the small and large intestine, in the chyle (after the use of amylaceous food), in the muscular juice (both of the voluntary and involuntary muscles), in the parenchymatous juices of the spleen, liver, thymus, pancreas, lungs, and brain, and is found as lactate of lime in the urine of the horse. It has been found in certain morbid conditions of the system in the milk, where it is formed from the sugar

by the fermenting action of the caseine; in the blood in leucocythæmia, pyæmia, and puerperal fever; in purulent and other transudations; in the urine when there is disturbance of the digestive and respiratory organs, and in rickets and softening of the bones (and almost always after exposure to the air for some time); in the saliva in diabetes; in the sweat in puerperal fever; and in the scales that form upon the skin in lepra.

The lactic acid occurring in the system may be traced to two distinct sources: that which is found in the intestinal canal is merely the product of the decomposition of the starchy matters of the food; but that which exists in the gastric juice (even when only animal food has been taken), in the muscular juice, and in the juices of the various glands, can only be regarded as a product of the regressive metamorphosis or disintegration of the tissues, and how it is formed is not accurately known.

There is no ready test for lactic acid. The best course to pursue is to obtain it, if it is present, as a lactate of lime, which crystallizes in beautiful tufts of acicular prisms, or as a lactate of zinc, which crystallizes in a very characteristic form in crusts consisting of delicate four-sided prisms.

LACTIC FERMENTATION. Although lactose or sugar-of-milk may, under certain conditions, be made to undergo alcoholic fermentation (as in the preparation of kumiss by the Tartars from mares' milk), it generally yields a very different product, viz., lactic acid, as may be seen in the case of milk turning sour in warm weather. The caseine is usually considered to act as the ferment, but being insoluble in acids. it is thrown down in flakes as soon as the milk becomes sour. In this insoluble form, it exerts little action in converting the lactose ($C_{12}H_{12}O_{12}$) into lactic acid ($C_6H_5O_5$,HO); but if the acid be neutralized by carbonate of soda or by chalk, the curd is redissolved, and the transformation of the sugar into lactic acid is renewed. No evolution of gas or absorption of oxygen takes place during the conversion of the sugar into the acid.

Not only sugar-of-milk, but cane-sugar, starch, dextrine, and gum pass readily into lactic acid under the influence of caseine or other animal matters undergoing decomposition.

Pasteur considers that a specific ferment, the germs of which exist in the atmosphere, is concerned in the production of the lactic fermentation. During the process recommended in the preceding article for the preparation of lactic acid, a layer of particles of a gray color is observed on the surface of the sediment. This substance, when examined under the microscope, is seen to consist of little globules or very short articulations, constituting irregular flocculent particles much smaller than those of beer-yeast, and exhibiting a rapid gyratory motion. When washed with a large quantity of water, and then diffused through a solution of sugar, the formation of lactic acid at once commences. Hence it follows that these organic particles, and not the caseine, are the actual agents in the conversion that takes place.

LACTIN AND LACTOSE. See SUGAR-OF-MILK, *ante*.

LACTOM'ETER. See GALACTOMETER, *ante*.

LACTUCA'RIUM, or LETTUCE OPIUM, is the inspissated milky juice of several species of *lactuca* or lettuce, and is obtained by incision of the stem. By drying in the air, the juice loses about half its weight of water, the residue being lactucarium. It usually occurs in commerce in small lumps about the size of a pea or small bean; they are of a reddish-brown color, but are sometimes covered with a grayish efflorescence; and they have a bitter taste and a smell resembling opium. Lactucarium has been frequently analyzed, but chemistry has thrown little light on its composition.

Lactucarium possesses anodyne and sedative properties, and is employed where opium is considered objectionable; as, for instance, when there is morbid excitement of the vascular system; and it is of service in allaying cough in phthisis and other pulmonary diseases. The usual dose is five grains, but it may be safely given in larger doses.

LACU'NARS, or LACUNARIS, the panels or coffers of ceilings, and also of the soffits of classic cornices. They are much used in the ceilings of porticoes and similar classic structures, and are frequently ornamented with pateræ.

LACUS'TRIANS AND LACUS'TRINE VILLAGES. See LAKE DWELLINGS.

LA'CY, LUIS, 1772–1817; b. San Roque, Spain; one of the earliest leaders in the war of independence against Napoleon, earning for himself the rank of lieut.gen. He was at the head of the conspiracy for the overthrow of absolutism and the restoration of the constitution in 1817; but the plot having been discovered before the day fixed for its execution, he was tried by court-martial and condemned to death. The sentence was secretly pronounced and executed at the castle of Bellver, Majorica.

LADAKH', otherwise known as MIDDLE THIBET, lies between Great Thibet on the e., and Little Thibet on the w., stretching in n. lat. from 32° to 36°, and in e. long. from 76° to 79°. On the s. it is separated from Cashmere by the Himalayas, while on the n. it is divided by the Karakorum mountains from Chinese Turkistan. It contains about 30,000 sq.m., and about 125,000 inhabitants. The country was conquered by Gholab Singh, the ruler of Cashmere, in 1835. It lies chiefly within the basin of the Upper Indus, being little better than a mass of mountains with narrow valleys between them. Notwithstanding its great elevation, which is equally unfavorable to soil and climate, the temperature is sometimes singularly high—a phenomenon attributed partly to the tenu-

ity of the atmosphere, and partly to the absence of moisture. Pretty good crops of wheat, barley, and buckwheat are raised; while the mineral products are sulphur, iron, lead, copper, and gold. The transit-trade is extensive, being carried on mostly by mules and sheep. The inhabitants are very peaceful and industrious; they are excellent farmers, and their woolen manufactures are said to be important. The women are fresh and fair, but rather lax in their morals; among the lower classes, polyandry is common. The population is essentially Mongolian, but has intermixed with the Cashmerians. The language is Thibetan, and in the opinion of Klaproth the primitive dialect of the aborignal people inhabiting the region between Hindustan and Tartary. The religion is Lamaism, a form of Buddhism (q.v.). It is a province of Cashmere, which is under a maharajah, and is a British feudatory. The capital city is Le (q.v.).

LA'DANUM, or LABDANUM. See CISTUS.

LADD, GEORGE TRUMBULL, D.D. See page 894.

LADD, WILLIAM, 1778–1841; b. Exeter, N. H.; graduated at Harvard college in 1797; was for some time a captain in the merchant marine. On leaving this occupation he became a resident of Minot, Me., and devoted himself to the promotion of the cause of peace. He was one of the founders and the first president of the American peace society, and editor of its periodicals, the *Friend of Peace* and the *Harbinger of Peace.* He lectured extensively on the evils of war, and published various pamphlets on the same subject, including an *Essay on a Congress of Nations.* Died at Portsmouth, N. H.

LADIES OF THE QUEEN'S HOUSEHOLD consist of the mistress of the robes, the ladies of the bedchamber, the bedchamber women, and the maids of honor.

The office of mistress of the robes is of considerable antiquity. It is her duty to regulate the rotation and times of attendance of the rest of the ladies of the household, who are all subordinate to her. She has the superintendence of all duties connected with the bedchamber—within which the lord chamberlain has no authority—and the custody of the robes. On state occasions, she must see that the ceremony of robing the queen is properly performed. In public ceremonials, she accompanies the queen in the same carriage, or walks immediately before her majesty. The *ladies of the bedchamber,* who now number eight, with five extra ladies, and the *bedchamber women,* of whom there are eight, besides one resident and three extra, are personal attendants, ministering to the state of her majesty. The *maids of honor,* of whom there are eight, are immediate attendants on the royal person, and in rotation perform the duty of accompanying the queen on all occasions. They enjoy by courtesy the title "honorable," when not entitled to it by birth, and are then designated the "honorable Miss ——" without the Christian name.

LADING, BILL OF. See BILL OF LADING.

LADINO, the name given throughout Central America, and especially in Nicaragua and Guatemala, to the half-breed descendants of whites and Indians. In this intermixture the white element has usually been represented by the father, there being few white women in the country. The ladinos are generally of a yellowish-orange tinge, the European element usually predominating in the males, the Indian characteristics in the females, who, notwithstanding, are said to be the handsomest women in Central America. As a class the ladinos are averse to all manual labor, and desirous of being ranked with the whites. Their equivocal social position tends to make them restless and turbulent, and to them largely may be attributed the civil wars which have marked the history of the Central American republics.

LADISLAS, VLADISLAS, VLADISLAF, ULADISLAS, different forms of a name frequently occurring in the histories of Poland, Hungary, Bohemia, and Servia.—VLADISLAS I. of Poland, surnamed Lokietek (the short)—one of those princes who appear to be raised up during a period of intestine confusion and disorganization, for the purpose of showing how powerful is the influence of one great mind—was ruler of the small province of Cracow, at a time when Poland was subdivided into countless small independencies. Vladislas united them in 1319; and the further to increase the stability of the government, he reduced the privileges of the higher nobles, removed the council of prelates and magnates, replacing it by a popular assembly; he greatly improved the administration of justice, and furthered commerce and industry.—VLADISLAS II. and VLADISLAS III. See JAGELLONS.—VLADISLAS IV. (1632–48), while yet a youth, was elected czar of Russia in 1610, but was prevented by his father, Sigismund, from accepting the crown. He was a wise and politic prince, yet it was under his reign that Sweden, Russia, and Turkey commenced to nibble at the outlying provinces. He strove manfully to remedy the peculiar defects of the Polish constitution, but they were too deeply rooted; and though he sought to end the oppression of the dissidents, and took the part of the Cossacks against those nobles who had deprived them of their rights, so weak was the royal authority that his support availed them nothing. The Cossacks, maddened by deprivation of their liberties, the imposition of new taxes, and the persecuting zeal of the Roman Catholic clergy, rose in rebellion, annihilated the Polish army, and put themselves under the rule of Russia. At this critical moment, Vladislas died.

LA'DISLAS, or LADISLAUS, the name of seven kings of Hungary.—LADISLAS I., THE SAINT, about 1041–95; succeeded his brother, Geysa I., in 1075. He was distinguished for his victories in war, for his efforts to promote commerce, for projecting the delivery

of the Holy Land from the Moslems, and for building many churches and monasteries; canonized by pope Celestine III. in 1192.—Ladislas II., about 1134–62; crowned 1161. —Ladislas III., about 1185–1205; elected to succeed his father, Emerich, but died.—Ladislas IV., surnamed the Cuman, about 1250–90; succeeded his father, Stephen IV., in 1272. He at first made war upon the Cumans and defeated them; but the latter, reinforced by hordes of Tartars, afterwards overran and ravaged all Hungary. He then made terms with them, adopted some of their customs, and put away his wife to marry one of their princesses. He was finally assassinated by them.—Ladislas V., 1424–44; succeeded his father, Ladislas II., as king of Poland in 1434, and was elected king of Hungary in 1440. He defeated the invading Turks in two great battles in 1442–43; made a ten years' truce with the sultan Amurath II., thus acquiring the sovereignty of Wallachia, but obtained a papal dispensation releasing him from his oath, invaded Bulgaria, and was defeated and killed in battle at Varna.—Ladislas VI., the Posthumous, son of Albert of Austria, 1440–57; b. several months after his father's death, when Ladislas V. was already upon the throne; was elected king in 1445, was crowned king of Bohemia Oct. 28, 1453, and d. at Prague. He was cruel in his character, and persecuted the followers of John Huss.—Ladislas VII., about 1456–1516; eldest son of Casimir IV. of Poland; was crowned king of Bohemia at Prague, Aug. 16, 1471; entered Hungary with an army in 1490, and was crowned king Sept. 21 of that year. He died at Buda.

LA'DISLAS, or Lancelot, King of Naples, surnamed "the liberal" and "the victorious," about 1335–1411; succeeded his father, Charles III., under the regency of his mother, in 1386, but was driven from Naples in 1387 by his competitor, Louis II. of Anjous, who was invested with the crown by authority of pope Clement VII. He was reinstated in the same year by Otto of Brunswick, and in 1388 repulsed two invasions made by pope Urban VI. He was crowned at Gaeta in 1390 by a legate of the new pope, Boniface IX. The capital was at this time in possession of his rival, Louis II., and was not recovered until 1399, after a long and bloody contest. He was crowned king of Hungary in 1403, but soon relinquished his pretensions to that crown. In 1405 he made an unsuccessful attempt to seize Rome, in consequence of which he was excommunicated and deprived of his kingdom by the pope. In 1413 he surprised, captured, and plundered the city, and in the following year died at Naples. He conceived the project of the unity of Italy, which waited more than four centuries for its realization.

LADMIRAULT, Louis René Paul de, b. France, 1808; rose rapidly by service in Africa; was general of division at Solferino, where he was wounded; senator in 1866; and commander of the 4th army corps ordered to defend the lines between Metz and Thionville in the war with Germany in 1870. After the defeat of MacMahon's division he retired his corps into Bazaine's command, and was surrendered with Metz, Oct. 27, 1870. After the peace in Mar., 1871, on the breaking out of the civil war between the national assembly at Versailles and the commune of Paris, Ladmirault was made commander of the troops charged to take Paris. On May 22 he forced an entrance by the *porte St. Ouen*, the following day gained possession of the heights of Montmartre, and thence, with obstinate fighting on both sides, took possession of the city part by part. July 1, 1871, he was made military governor of Paris, and in the organization of the military service to insure the peace of Paris he used his discretionary power to suppress journals, interdict plays at theaters, etc., in such a way as to suggest to the republican papers that they were unduly honored by his disapproval.

LADO'GA (Staraïa, or Old Ladoga), an ancient Russian t., in the government of St. Petersburg, on the left bank of the river Wolkhof. It was the residence (862) of Rurik, the founder of the Russian monarchy, and the walls of a fortress erected by him, and a church of the 11th c., still mark its site. Previously to the accession of Peter I., old Ladoga was an important strategic point for the defense of Novgorod. Peter I. built the town of Novo, or New Ladoga, near the entrance of the Wolkhof into lake Ladoga, and now on the site of the old town of Rurik stands the small village of Ouspenskoe.

LADOGA, Lake, the largest lake of Europe, is situated in the n.w. of Russia, between Finland and the governments of Olonetz and Petersburg. It is 120 m. in length, 70 m. in breadth, and 6,804 sq.m. in area. It receives the waters of lake Onega, lake Saim, and lake Ilmen, and its own waters are carried off to the gulf of Finland by the Neva (q.v.). The depth of lake Ladoga varies from 12 to 1200 ft., and the navigation is exceedingly dangerous, owing to the shallows, sand-banks, and sunken rocks in which it abounds, and to the gusty winds which are created by its steep and rocky banks. Of the several islands of the lake, the principal are the Valaam and Konevetz, with monasteries, which attract numbers of pilgrims. Of the 70 rivers which fall into lake Ladoga, the principal are the Wolkhof, the Sias, and the Svir, each of which is a means of communication between the Neva and the Volga. In order to obviate the difficulty of navigation, canals have been constructed along its s. and s.e. shores, the principal being the Ladoga canal (70 ft. wide), which unites the mouth of the Wolkhof with the Neva. Other two canals unite the mouths of the Sias and Svir with the Ladoga canal. This canal-system forms the thoroughfare for a very extensive traffic between the Volga and the

Baltic. Communication by water subsists between lake Ladoga and the White sea as well as the Caspian.

LADRO'NES, or MARIANNE ISLANDS, a group of about 20 islands, the northmost Australasian group, in lat. 13½° to 20½° n., and long. 145½° to 147° east. They are disposed in a row almost due n. and south. Their united area is 1254 sq. miles. They were discovered by Magellan (in 1521), who gave them the name which they still bear, from the thievish propensity displayed by the natives. They were afterwards called the *Lazarus islands;* and the Jesuit missionaries, who settled here in 1667, called them the *Mariana islands.* They are mountainous, well watered and wooded (among the trees are the bread-fruit, the banana, the cocoa-nut), fruitful in rice, maize, cotton, and indigo. European domestic animals are now very common. At the time when they were discovered, the population was reckoned at 100,000, but the present population is only about 5,500. The inhabitants, who are docile, religious, kind, and hospitable, resemble in physiognomy those of the Philippine islands. The islands are very important to the Spaniards, in a commercial point of view. The largest island is Guajan, 90 m. in circumference; on it is the capital, San Ignacio de Agaña, the seat of the Spanish governor.

LADY, a woman of distinction correlatively to *lord* (q.v.), used in a more extensive sense in common parlance correlatively to *gentleman.* As a title, it belongs to peeresses, the wives of peers and of peers by courtesy, the word lady being in all these cases prefixed to the peerage title. The daughters of dukes, marquises, and earls are by courtesy designated by the title lady prefixed to their Christian name and surname; a title not lost by marriage with a commoner, when the lady only substitutes her husband's surname for her own, and retains her precedence. But a peer's daughter marrying a peer can no longer be designated by her Christian name with lady; she must take her husband's rank and title, even should a loss of precedence be the result, as when the daughter of a duke marries an earl, viscount, or baron. Should her husband, however, be merely a courtesy peer, she may retain her designation by Christian name with lady prefixed, substituting her husband's courtesy title for her surname; this title and precedence being again dropped on her husband's succession to the peerage by his father's death. The daughter-in-law of a duke, marquis, or earl is generally designated by the title lady prefixed to the Christian name and surname of her husband; but if she be the daughter of a peer of a higher rank than her father-in-law, she may, if she pleases, be designated by lady prefixed to her *own* Christian name and her husband's surname, and in that case she retains the precedence which she had when unmarried. The wife of a baronet or knight is generally designated by lady prefixed to her husband's surname; the proper legal designation, however, being dame, followed by her Christian name and surname.

LADYBIRD, *Coccinella,* a genus of coleopterous insects of the section *trimera,* containing a great number of species very similar to each other. They are very pretty little beetles, well known to every one, generally of a brilliant red or yellow color, with black, red, white, or yellow spots, the number and distribution of which is one of the characteristic marks of the different species. The form is nearly hemispherical, the under-surface being very flat, the thorax and head small; the antennæ are short, and terminate in a triangular club; the legs are short. When handled, these insects emit from their joints a yellowish fluid, having a disagreeable smell. They and their larvæ feed chiefly on aphides, in devouring which they are very useful to hop-growers and other agriculturists. They deposit their eggs under the leaves of plants, on which the larvæ are to find their food, and the larvæ run about in pursuit of aphides. Ladybirds are sometimes to be seen in immense numbers, which, from ignorance of their usefulness, have sometimes been regarded with a kind of superstitious dread. Several species are abundant in Britain, and the largest of these (*C. septem punctata*) is found over all Europe, and in parts of Asia and Africa. The name ladybird is perhaps a corruption of *ladybug* (lady, i.e., the virgin Mary). The German name is *marienkäfer.*

LADY CHAPEL, a chapel dedicated to the virgin Mary ("our lady"), and usually, but not always, placed eastwards from the altar when attached to cathedrals. Henry VII.'s chapel at Westminster is the lady chapel of that cathedral.

LADY-DAY, one of the regular quarter-days in England and Ireland on which rent is generally made payable. It is Mar. 25 in each year.

LADY FERN, *Athyrium filix fœmina,* or *asplenium filix fœmina,* a beautiful fern common in moist woods in Britain, with bipinnate fronds sometimes 2 ft. long. The whole plant has an extremely graceful appearance. It is said to possess the same anthelmintic properties as the male fern.

LADY HUNTINGDON'S CONNECTION, OF CALVINISTIC METHODISTS. See HUNTINGDON, SELINA, COUNTESS OF.

LADY OF MERCY, OUR, a Spanish order of knighthood, founded in 1218, by James I. of Aragon, in fulfillment of a vow made to the Virgin during his captivity in France. The object for which the order was instituted was the redemption of Christian captives from among the Moors, each knight at his inauguration vowing that, if necessary for their ransom, he would remain himself a captive in their stead. Within the first six years of the existence of the order, no fewer than 400 captives are said to have been ransomed by its means. On the expulsion of the Moors from Spain, the labors of the

knights were transferred to Africa. Their badge is a shield party per fess gules and or, in chief a cross pattée argent, in base four pallets gules for Aragon, the shield crowned with a ducal coronet. The order was extended to ladies in 1261.

LADY OF MONTESA, OUR, an order of knighthood, founded in 1317, by king James II. of Aragon, who, on the abrogation of the order of the templars, urged pope Clement V. to allow him to employ all their estates within his territory in founding a new knightly order for the protection of the Christians against the Moors. His request was acceded to by the following pope, John XXII., who granted him for this purpose all the estates of the templars and of the knights of St. John situated in Valencia. Out of these was founded the new order, which king James named after the town and castle of Montesa, which he assigned as its head-quarters. The order is now conferred merely as a mark of royal favor, though the provisions of its statutes are still nominally observed on new creations. The badge is a red cross edged with gold, the costume a long white woolen mantle, decorated with a cross on the left breast, and tied with very long white cords.

LADY'S FRIEND, a name given to an officer of the house of commons, who used to take care that a provision was inserted in favor of a wife when the husband applied for an act of parliament to divorce her. The practice is now superseded by the different practice in an ordinary suit in the divorce court.

LADY'S GOWN, a present formerly made in Scotland by a purchaser of an estate to a wife on her renouncing her life-rent over her husband's lands.

LADY'S MANTLE, *Alchemilla,* a genus of herbaceous plants, chiefly natives of temperate and cold climates, of the natural order *rosaceæ,* suborder *sanguisorbeæ;* having small and numerous flowers, an 8-cleft calyx, no corolla, and the fruit surrounded by the persistent calyx. The name lady's mantle, signifying *mantle of Our Lady*—i.e., of the virgin Mary—is derived from the form of the leaves.—The Common Lady's Mantle (*A. vulgaris*) is abundant on banks and in pastures throughout Britain. Its root-leaves are large, plaited, many-lobed, and serrated; its flowers, in corymbose terminal clusters, are usually of a yellowish-green color.—Still more beautiful is the Alpine Lady's Mantle (*A. Alpina*), which grows on mountains in Scotland, and has digitate serrated leaves, white and satiny beneath.—A common British plant of very humble growth and unpretending appearance is the Field Lady's Mantle, or Parsley Piert (*A.*—or *aphanes—arvensis*), found in pastures, an astringent and diuretic, said to be sometimes useful in cases of stone in the bladder by producing a large secretion of lithic acid.

LADY'S SLIPPER, *Cypripedium,* a genus of plants of the natural order *orchideæ,* of which one species, *C. calceolus,* is a native of Britain, being found in a few places in the n. of England, and is reckoned one of the most beautiful of the British orchids. The genus is remarkable for the large inflated lip of the corolla. Several very beautiful species are natives of the colder parts of North America. See Supp. CYPRIPEDIEÆ.

LAEKEN, a village of Belgium, a suburb of Brussels, containing a royal palace built in 1782 by the Austrian princess, Maria Christina. After passing through one or two other hands, this palace was bought by Napoleon in 1806 for 500,000 francs for Josephine; and in 1811 he resided there for a time with Maria Louisa. In 1812 he exchanged it for the Élysée Bourbon. Afterwards it became the property of Belgium, and is at times the residence of the royal family. Malibran is buried in the cemetery of Laeken, and a monument by the sculptor Geefs marks the spot. The tombs of queen Louise and king Leopold I. are in the parish church, and a Gothic building has been erected there as a vault for the royal family.

LÆLAPS, or Dryptosaurus, a genus of deinosaurian reptiles found in the cretaceous deposits of North America, and closely allied to hadrosaurus (q.v.), megalosaurus (q.v.), and iguanodon (q.v.), in fact being the American representative of megalosaurus, which is a charactaristic fossil of the Wealden and Purbeck limestones. Like the above-mentioned relatives, it had very large hind-legs, upon which it is supposed to have walked It was probably about 25 ft. in length, including the tail, and is supposed to have been, when standing on its hind-legs, about 12 ft. in height. It was, like others of the family, a terrible, carnivorous reptile.

LÆLIUS, Sapiens Caius, B.C. 186–115; the son of C. Lælius Nepos. In early life he studied philosophy with Diogenes and Panætius; and afterwards law, taking a high rank among the orators of his time. He was the intimate friend and companion of Scipio Africanus the younger, and accompanied him in his expedition into Africa, displaying great valor at the siege of Carthage, 146 B.C. When prætor in Lusitania he made a successful campaign against the powerful chieftain Virialthus. He was consul 140 B.C. At the beginning of his career he favored plans for raising the masses to become landed proprietors, but was repelled by the extravagance of the elder Gracchus. After his political career closed he spent his time in the country, partly in study and partly in rural occupations. The equanimity of his temper is noticed by Horace in the words *mitis sapientia Lælii.* Cicero placed his name at the head of his essay *De Amicitia.*

LAENNEC, René Theodore Hyacinthe, a distinguished physician, was b. at Quimper, in lower Brittany, in 1781, and d. there in 1826. He studied medicine in

Paris, where he attended the practice of Corvisart, to whom the medical profession is mainly indebted for the introduction of percussion in the investigation of diseases of the chest, although the original discovery is due to Avenbrugger. In 1814 he took the degree of doctor of medicine, and in the same year he became the chief editor of the *Journal de Médecine.* In 1816 he was appointed chief physician to the Hôpital Neckar, and it was there that he soon after made the discovery of mediate auscultation, or, in other words, of the use of the stethoscope (q.v.). In 1819 he published his *Traité de l'Auscultation Médiate,* which has undoubtedly produced a greater effect, in so far as the advance of *diagnosis* is concerned, than any other single book. His treatise had not long appeared when indications of consumption were discovered in his own chest by means of the art of his own creation, and after a few years of delicate health, during which he continued to practice in Paris, he retired to die in his native province.

LAESA MAJESTAS, leze-majesty, or high treason. The term, which was transferred from the Roman to the common law, denoted an offense against the king in his person or office. See TREASON, LEZE-MAJESTY.

LÆSTRY GONES, a fabulous race of giants often mentioned in the Greek mythology. Their name first occurs in the *Odyssey,* where they are described as a pastoral people, governed by a king called Lamus. Tradition places them in Sicily. The common story is that they lived near Leontini in that island, and that hence the plains adjacent to that city were called Campi Læstry-Gonii. At Rome the belief is that they lived on the Latium coast, and that their capital was Formiæ.

LAET, JAN DE, b. Antwerp, 1633; one of the directors of the East India company, and an intimate friend of Salmasius. He was the author of nearly 20 learned geographical works in Latin, several of which were incorporated in the miniature series of *Republics* issued by the Elzevirs of Leyden. He held a sharp controversy with Grotius as to the origin of the Indian tribes of America. Among his works were *Novus Orbis* and *Historia Naturalis Braziliæ.*

LÆTA'RÉ SUNDAY, called also MID-LENT, is the 4th Sunday of lent. It is so named from the first word of the introit of the mass, which is from Isaiah lxvi. 10. From this name the characteristic of the services of the day is joyousness, and the music of the organ, which throughout the rest of lent is suspended, is on this day resumed. Lætare Sunday is also the day selected by the pope for the blessing of the golden rose (q.v.).

LAFARGE, JOHN. See page 894.

LAFARGE, MARIE CAPPELLE, 1816–52; b. France, of good family; distinguished as the victim of circumstantial evidence, which procured her conviction at the age of 24 for the murder of her husband by poison. The trial was remarkable for the virulence with which the prosecution was conducted, the judge even seeming to be one of the prosecutors; for the contradictions of scientific experts as to the finding of arsenic in the body of the deceased; and yet more by the failure to arrest the only party, a servant of the deceased and a proved knave, who could have profited by the death. Lafarge was sentenced to labor for life in prison, but she was allowed to write her memoirs, published in 1841, in which she reviews with vigorous irony and originality the proceedings of the court. Her sentence was subsequently softened, and she wrote *Heures de Prison,* a little volume of tender and melancholy resignation; also, a little drama entitled *Une Femme Perdue.* She was pardoned out after 12 years' captivity, leaving prison broken in health, in almost a dying condition, and expired at the baths of Ussat a few months after. The case is regarded as one of the worst examples of severe punishment on insufficient evidence.

LA FARI'NA, an Italian author and politician, b. at Messina in 1815. In the university of Catania the degree of doctor of laws was conferred on him at the age of 19; and in 1837, having taken part in an ineffectual revolutionary movement in Sicily, he sought safety in expatriation. In 1839 he returned to Sicily, was received as a lawyer, and started several political journals, which were all successively suppressed. This led him to remove to Florence, where he published several works, more remarkable for their contents than for the graces of their language. In the rising of 1848 La Farina took a prominent part in the movement of Tuscany, where he edited the first democratic and anti-papal journal, the *Alba.* He soon returned to Sicily, and was elected member of the council of war and member of parliament; and on the deposition of the king by the Sicilians he was dispatched by the provisional government on a mission to Rome, Tuscany, and Turin. On his return to Palermo he discharged the combined duties of minister of public instruction, of public works, and of the interior. After the capture of Messina by the royal troops, La Farina accepted from the king's government the post of minister of war, a step which incurred the severe censure of the party of liberty, but which only led to his renewed banishment from Sicily. In the war of the south, by which the heroic Garibaldi liberated the kingdom of Naples, La Farina reappeared in Sicily; but his unfortunate differences with Garibaldi led to his ultimate expulsion from the island. He died two years later in 1863. Some of his principal works are: *Souvenirs of Rome and Tuscany; Italy* (1 vol.); *Switzerland* (2 vols.); *China* (4 vols.); *History of the Revolution of Sicily in* 1848 *and* 1849 (2 vols.).

LAFAYETTE, a co. in s.w. Arkansas, bounded on the w. by the Red river, which divides it from Miller county. It is drained by the Red river and the bayou Bodeau.

Its s. boundary is the frontier line of Louisiana. It is crossed by the Cairo and Fulton railroad; 1,060 sq. m.; pop. '80, 5,729—3,613 colored. The surface is mostly level prairies, on which are found extensive forests of building timber, as well as ornamental trees. The soil is low and wet, but very prolific. The staple products are cotton, sweet potatoes, corn, pork, and live stock. Assessed value of all estate in '80, $571,741. Seat of justice, Lewisville.

LAFAYETTE, a co. in n. Florida, bounded on the e. and n. by the Suwanee, a navigable river, which, rising in the n. and emptying into the gulf of Mexico, separates it from Suwanee, Alachua, and Levy counties. The gulf of Mexico and a small stream complete its boundaries, with the exception of a small portion in the n.w., which is bounded by the co. of Taylor; 900 sq. m.; pop. '80, 2,440—173 colored. The surface spreads into broad and level plains, covered with a dense growth of timber. The soil is easily cultivated, and the chief products are Indian corn, sweet potatoes, sugar, and molasses. Cotton is raised to some extent, also cattle, horses, and swine. Fort Macomb is in the eastern section on the banks of the Suwanee. Total assessed valuation of estate in '80, $253,126. Seat of justice, New Troy.

LAFAYETTE, a parish in s. Louisiana, bordered on the n. e. by the Vermillion river, a bayou navigable by steamboats, which passes through it south-westwardly; 240 sq. m.; pop. '80, 13,236—5,540 colored. The surface is low and level, with a rich soil adapted to the cultivation of cotton, sugar-cane, sweet potatoes, rice, corn, and the raising of live stock. Wool is a staple product. There were produced in '80, 631 hogsheads of sugar, and 30,889 gallons of molasses, employing 6 manufactories. It has good water privileges and 2 saw-mills. It will be intersected by the railway line from New Orleans, La., to Houston, Texas, crossing it centrally; at present the town of Vermillionville is the terminus of Morgan's Louisiana and Texas railroad, distant from New Orleans 143 miles. Assessed value real and personal estate, '80, $545,435. Seat of justice, Vermillionville.

LAFAYETTE, a co. in n. Mississippi, watered by the Tallahatchie river, forming its n.e. boundary, and the Yockeney or Yocknapatalfa branches of the Yazoo river; and intersected by the Chicago, St. Louis and New Orleans railroad; 790 sq. m.; pop. '80, 21,671—10,286 colored. The surface is undulating, with occasional groves of magnolia, tulip tree, black walnut, and the timber generally found in the southern states. The soil produces wheat, maize, and sweet potatoes. Cotton is cultivated and cattle are raised to some extent. Pork is a staple product. The industries are represented by several tanneries and currying establishments. Its water power is utilized by 7 saw-mills and a wool carding mill. Assessed value real and personal estate, '80, $2,303,405. Seat of justice, Oxford.

LAFAYETTE, a co. in w. Missouri, bordered on the n. by the Missouri river, which separates it from Ray and Carroll counties. It is watered by confluents of the Missouri, and crossed centrally by the Lexington branch of the Missouri Pacific railroad; 585 sq. m.; pop. '80, 25,731—4,418 colored. It has a surface of rolling prairie, with large tracts of arable land, covered with a thick growth of timber; that which is under cultivation bears corn, wheat, oats, and hay. Cattle, horses, sheep, and swine are raised, and tobacco and wool are staple products. Its manufactories are few in number, but it contains inexhaustible beds of bituminous coal and extensive ledges of limestone and sandstone largely used for building purposes. It has several flour-mills and saw-mills. Assessed value real and personal estate, '80, $7,789,885. Seat of justice, Lexington.

LAFAYETTE, a co. in s.w. Wisconsin, has for its southern boundary the state line of Illinois. It is watered by the Fevre and Pecatonica rivers, which form a single stream in the s.c. corner. The northern division of the Illinois Central railroad traverses the s.e. section, and it is intersected by the Mineral Point railroad; 630 sq. m.; pop. '80, 21,278—7 colored. The surface is rolling and mostly without forests. The n.w. section is hilly and rises into what are called the Platte Mounds. It has a large extent of arable land, with mineral bearing tracts, where lead, copper, zinc, and silurian limestone are found. The soil is adapted to wheat, corn, oats, barley, and potatoes; other products are flax-seed, wool, butter, cheese, and hay. The raising of live stock is a lucrative pursuit. It has excellent water power and 6 flour-mills. Wagons, carriages, saddlery and harness, and pig lead are manufactured. Assessed value real and personal estate in '80, $9,242,454. Seat of justice, Darlington.

LAFAYETTE, a city of Indiana, United States of America, on the e. bank, and at the head of navigation of the Wabash river, 63 m. n.w. of Indianapolis, on the line of the Wabash and Erie canal, and at the intersection of five railways. It is a flourishing city, in the midst of a rich prairie country. Laid out in 1825; it has 24 churches, 3 daily and 5 other newspapers, with numerous banks, hotels, and manufactories. Pop. '70, 13,506.

LAFAYETTE (*ante*), a city in Indiana, organized in 1857, in the co. of Tippecanoe, on a bluff by the banks of the Wabash river; pop. '80, 14,860 of American birth. It is on the line of the Wabash and Erie canal, and is the terminus of the Indianapolis, Cincinnati and Lafayette railroad, and a junction of the Lake Erie and Western railway and the Wabash, St. Louis and Pacific railway with the Louisville, New Albany and Chicago railway. It is 63 m. n.w. of Indianapolis, 130 m. s.s.e. of Chicago, and

37 m. s.w. of Logansport. At the head of navigation, with these railroad facilities, it is the center of a constantly enlarging system of freight transportation, which commands the patronage of a large commercial interest, and the trade of a vast extent of fruitful country. It has 5 national banks with an aggregate capital of $2,505,000, also 25 churches, including a Jewish synagogue, 3 daily and 4 weekly newspapers, and a German semi-weekly. It is 7 m. s. of the field where the famous battle of Tippecanoe was fought, Nov. 7, 1811, an engagement between Tecumseh's brother Elskwatara, chief of the Shawnees, with 400 Indians, which he had induced to join him by promises of aid from England, and the American general, Harrison, with 800 men, who attempted to drive them within the limits prescribed by treaty. Elskwatara, making the attack on the American camp, was defeated, the battle resulting in a new accession of territory to the United States. Among its industries are the manufacture of plows, reapers and mowers, pumps, barrels, clothing, boots and shoes, carriages, and the business of pork-packing. The manufactories include a number of breweries, ornamental iron works, marble works, and foundries. It has a complete municipal government, with an efficient police force and fire department, and medicinal springs in the center of the city, brought to the surface by means of an artesian well 230 ft. deep. Within its limits are the county fair grounds and the county jail, costing $95,000. It has an opera-house costing $62,000, and a court-house, a monastery, a convent, orphan asylum, and a hospital, the latter a Roman Catholic institution. It is the seat of the state agricultural college, called Purdue university on account of a gift of $150,000 and 100 acres of land from John Purdue; congress by the land grant furnishing $212,238, and the state and county $110,000 and its support. It has fine public school buildings, superior educational advantages, and several Roman Catholic schools, including St. Mary's academy; also, a free reading-room and library supplied by the Young Men's Christian Association.

LAFAYETTE, Marie Jean Paul Roch Yves Gilbert Motier, Marquis de, descended from an ancient family of Auvergne, was b. Sept. 6, 1757, in the castle of Chavagnac, now in the department of upper Loire. He became a soldier at an early age, and in 1777 went to America to take part with the colonists in their war of independence. The friendship of Washington exercised a great influence over the development of his mind and the formation of his opinions. The declaration of war between France and Britain gave him an opportunity of aiding the new republic effectually, by returning to France, where he was received with honor by the court, and with enthusiasm by the people. He again repaired to America in 1780, and was intrusted by congress with the defense of Virginia, where he rendered important services. On a third visit to North America in 1784, after the conclusion of peace, he was received in such a manner that his tour was a continual triumph.

Lafayette had imbibed liberal principles, and now eagerly sought to promote a thorough reform in his native country. He was called to the assembly of notables in 1787, and was one of those who most earnestly urged the assembly of the states. He took part also in the movements which converted the assembly of the states into the national assembly in 1789. He took a very active part in the proceedings of the assembly, and being appointed to the chief command of the armed citizens, laid the foundation of the national guard, and gave it the tricolor cockade. In these first periods of the revolution it seemed as if Lafayette had the destinies of France in his hands. But he found himself unable to control the excitement which sprung up. The extreme republicans soon came to dislike him, because he advocated a constitutional kingdom; and the court-party, especially the queen, did the same—in spite of the services he rendered them—because of his zeal for the new order of things. Along with Bailly, he founded the club of the Feuillants. After the adoption of the constitution of 1790 he retired to his estate of Lagrange, till he received the command of the army of Ardennes, with which he won the first victories at Philippeville, Maubeuge, and Florennes. Nevertheless, the calumnies of the Jacobins rendered him exceedingly unpopular, and he was accused of treason, but acquitted. After several vain efforts to maintain the cause of rational liberty, he left Paris for Flanders, but was taken prisoner by the Austrians, and remained at Olmütz till Bonaparte obtained his liberation in 1797; but he took no part in public affairs during the ascendency of Bonaparte. He sat in the chamber of deputies from 1818 to 1824 as one of the extreme left, and from 1825 to 1830 he was again a leader of the opposition. In 1830 he took an active part in the revolution, and commanded the national guards. In 1824 he revisited America, by invitation of congress, who voted him a grant of $200,000 and a township of land. He died May 20, 1834.

LAFAYETTE, Marie Jean Paul Roch Yves Gilbert Motier, Marquis de (*ante*). A simple epitome of the acts of Lafayette from early youth to ripe old age, in the thick of the grandest revolutions of the world's history, and he in all a leading actor, would suffice to give the student of history a profound recognition of the greatness and nobility of his character. But the part taken by Lafayette in the struggle of the thirteen American colonies to become a free republic was of a nature which demands exceptional recognition in America. The chivalric and persistent devotion of the boy-nobleman to the cause of liberty when it seemed most gloomy and hopeless will always cause a throb of grateful interest in his life in the hearts of Americans, and make them curious to follow to its close a life so nobly begun. Orphaned of father at birth and of

mother at the age of 12, his life developed from within, and was little molded by any will but his own. His aptness and progress crowned his school-days with honor. The writings and philosophy of that time were particularly imbued by a chivalric tendency to promote liberty and progress, and those who were soon to lose most by the natural logic of such opinions were foremost in their advocacy. Lafayette had the stimulus needed for the development of a noble life. Filled with a French boy's thirst for glory, young Lafayette was unique in his appreciation that true glory is gained only in a noble cause. In his memoirs we see on how high a plane his nature was leveled when he states that while with his regiment at Noailles, at the age of 18, he was unpopular on account of his silence, and silent because he heard nothing worth hearing. His high rank would have made his progress at court sure and rapid had he been a courtier. But he disdained the court life and was ill at ease in it.

The struggle of the American colonies had attracted little attention in Europe until the declaration of independence. That terse and thrilling appeal to the sympathy and judgment of the world commanded attention. In the summer of 1776, while stationed at Metz on duty in the army, he attended a dinner given by the French officers to the duke of Gloucester, brother of the king of England. Dispatches had just been received from London containing the declaration of independence, and information of the vigorous measures being taken to crush the rebellion. While at table in conversation with the English guests, he formed the resolution to offer his services to the colonies. He went to Paris and consulted with the count de Broglie, an old general of the army and a friend of his father, concerning his projects. De Broglie "thought it so chimerical and fraught with so many hazards, without a prospect of the least advantage, that he could not for a moment regard it with favor," and advised the youth to abandon it immediately. Lafayette replied that he must go, and obtained a promise from the old soldier not to betray his intention. The old friend's parting words were: "I have seen your uncle die in the wars of Italy, I witnessed your father's death at the battle of Minden, and I will not be accessory to the death of the only remaining member of the family." He argued in vain to divert Lafayette from his purpose, and finally introduced him to baron de Kalb, who also was seeking to get to the aid of the colonies. Soon afterwards came the news of the evacuation of New York by Washington and of general disasters to the colonial forces. Lafayette was again urged to abandon a scheme which seemed not only without hope of success, but without glory or reward in case of success. But the misfortunes of the colonies but deepened his sympathy and strengthened his determination. He had before thought only to offer his sword and his life, with a few devoted companions. He now resolved to purchase a ship, store it with munitions needed by Washington, and to lose no time in going to his assistance. Franklin and Arthur Lee were then the American commissioners in Paris. With grateful admiration they seconded the young man's plans. With a reticence and skill remarkable in a youthful enthusiast, Lafayette distracted attention from his purpose by a visit to England while his vessel was being fitted for the voyage, and kept his plans a secret from the French ambassador in London as well as from his own government. He returned when his ship was ready, saw few friends, did not go to Paris, and was ready to start, when his scheme was exposed to his government, which caused his arrest and detention on the ground that the assistance he was endeavoring to render the colonies was a breach of neutrality on the part of France towards England. His father-in-law procured a *lettre de cachet* commanding Lafayette to repair to Marseilles and await orders. His family wounded him with reproof for his rash determination. But his noble young wife, whom he had married when he was 16 years of age, was one with him in spirit and purpose, and seconded his determination. He kept well advised of the movements anticipated for his arrest, and, feigning to obey the order to go to Marseilles, he started for that city, but arriving at Bordeaux assumed the dress of a courier, and with much difficulty succeeded in reaching his ship and set sail for America. Nearly a year had been consumed in these preparations and enforced delays. His vessel reached land at Georgetown, S. C., about the middle of June, 1777. His party proceeded quickly to Charleston, and thence, visiting the state capitols and officials on the way, to meet congress at Philadelphia. When his letters of tender of service in the American army were presented to the chairman of the committee on foreign affairs, that dignitary informed him that "so many foreigners had offered themselves for employment that congress was embarrassed with their applications," etc. Lafayette's action following was characteristic. He wrote a note to the president of congress in which he desired to be permitted to serve in the American army on two conditions: first, that he should receive no pay; secondly, that he should act as a volunteer. His persistence and disinterestedness won, and he was appointed a maj.gen. in the American army before he had reached the age of 20. His first meeting with Washington resulted in a warm and enduring friendship, and he was at once invited to become a member of the commander's military family. His first service in battle was at Brandywine, where his bravery, skill, and coolness were conspicuous and he received his first wound. Late in 1777 a cabal was formed in congress, in which one Conway was the intriguer, against Washington, with purpose to make gen. Gates commander-in-chief. Congress instituted a new board of war, placing gen. Gates at the head of it. This board planned an attack on Canada without any consultation whatever with Washington. One of its first acts

was to forward a letter to Washington through Lafayette, inclosing the appointment of the latter to the command of the expedition. It was intended to separate Lafayette from Washington. But he was not flattered, nor uncertain how to receive it. He handed the letter to Washington and told him that he should decline. Washington, however, urged him to accept the appointment for patriotic reasons, and he went to Albany to assume command. But the plans of the board of war were not carried out. He found no army to command, and during the winter rejoined Washington at Valley Forge. Sparks, in his *Life of Washington*, observes: "It must here be recorded to the honor of Lafayette—if, indeed, his whole career in America was not a noble monument to his honor, his generosity, and unwavering fidelity to every trust imposed on him—that from the very first he resisted every attempt that was made by the flatteries of Conway and the artifices of others to bring him into the league."

The attention called to the revolutionary struggle by Lafayette's chivalric devotion to it created a romantic sympathy for the Americans among the noble classes of France, which Lafayette aided by correspondence to foster. In Feb., 1778, the American commissioners in Paris, Franklin, Dean, and Lee, not only obtained the recognition of the independence of the United States, but secured a treaty of alliance with France. May 20, 1778, Washington placed 2,000 men under the command of Lafayette to watch and harass the main British army then about to move from Philadelphia to New York. He was attacked in force, but handled his troops in a masterly manner and withdrew with an insignificant loss. From this time forward Washington placed the boy-commander in positions which particularly required alertness, boldness, and prudence combined. Late the same year Lafayette returned to France to urge speedy assistance for the Americans, and returned late in April, 1779, with the news that a French fleet and land force was on its way to the United States. He visited Washington in camp, and then visited the congress. The fleet brought not only a considerable French land force, but also large supplies of clothing and ammunition for the Americans, which Lafayette had induced his government to send. While he was in Paris the French prime minister had remarked: "It is fortunate for the king that Lafayette does not take it into his head to strip Versailles of its furniture to send to his dear Americans, as his majesty would be unable to refuse it." Another valuable service rendered during his short stay in Paris was the instructions which he procured from the commander of the French forces in America, which stated in unequivocal language that the French forces by land and sea were to be under the control of Washington and to act as auxiliaries of the states' army, and that French officers were to receive orders from American officers of the same rank. This insured a harmony and efficiency of joint service that could not otherwise have been attained. In Feb., 1781, Washington placed Lafayette in command of a detachment to act in Maryland and Virginia. The French fleet was to move down the coast to act in conjunction with him, but that part of the plan failed. Later in the season, however, his activity and skillful maneuvering served to hold Cornwallis in check in southern Virginia. Both Washington and the count de Vergennes, French ambassador, wrote letters of warm commendation of the ability with which Lafayette handled his army in that campaign. In the beginning of this campaign the troops were so scantily clad and the government was so unable to supply them that Lafayette, on his own personal responsibility, borrowed $10,000 of the merchants of Baltimore to buy cloth for them, and inspired the ladies of that city to make the garments required. In Oct., 1781, Lafayette took conspicuous part in the siege and storming of Yorktown, resulting in the surrender of Cornwallis and the British army under him. Soon after this final victory, Lafayette obtained permission of congress to return to France. From that time forward his life was identified with the history of France for upwards of 40 years, and no stain is known to rest on the purity and disinterestedness of his public service. No private misfortunes or losses incident to the forfeiture of his great estates by the revolution of 1789–93 ever drew from him a revocation of his republican principles, or a sign of regret for the sacrifices which he had made for them. His visit to the United States in 1824, on invitation by Congress, was an event memorable in American annals. He was sought as a public guest in all parts of the country; his course was amid a universal tumult of honor and praise; the nation thronged around him to testify with one voice its gratitude and love.

LAFAYETTE, Marie Madeleine Pioche de Lavergne, Comtesse de, b. 1633, d. 1693; the authoress of a number of novels, excelled by no works of that age in the development of character and true delineation of human nature. Her father, Aymar de Lavergne, was governor of Havre. She received an excellent education, and in 1655 married the count de Lafayette, after which her house became a resort of the most distinguished literary men of her age, at the same time that it was frequented by the persons of highest rank and fashion in Paris. Her novels, *Zaïde* and *La Princesse de Clèves*, have been frequently reprinted.

LAFAYETTE COLLEGE, at Easton, Penn., founded in 1832 under a charter granted by the state legislature in 1826. George Junkin, D.D., LL.D. (q.v.), was its founder and first president, conducting it for 9 years. It is under the patronage of the Presbyterian denomination; its productive investments amount to $258,000; non-productive, $559,000; annual income, $16,000. It has noble buildings and grounds, and has a library

of 16,000 vols., and valuable apparatus, scientific collections, etc. It had, in 1885, 20 professors ; other instructors, 5 ; students, 290 ; alumni, 1,100. It embraces schools of art, science, and law. The classical course of study is maintained in its integrity. The general scientific course, and the courses in civil engineering, mining, and metallurgy, and chemistry are endowed by Mr. Ario Pardee, of Hazelton, Penn., and constitute "the Pardee scientific department" of the college. A grand building for the uses of this department was erected and furnished by Mr. Pardee at his own expense, and is named "Pardee hall." This building was burned, and has recently been replaced by one which reproduces the beauty and fitness of the original. Mr. Pardee's gifts to the college amount in all to nearly $500,000. The post-graduate courses are thoroughly organized. President, James H. M. Knox, D.D.

LAFFITTE, Jacques, a French banker and statesman, b. of humble parentage at Bayonne, Oct. 24, 1767, was early employed as a clerk by the rich banker Perregaux in Paris, and succeeded him in business in 1809. He soon rose to great wealth and a European reputation. He was made president of the chamber of commerce, and in 1814 governor of the bank of France. On the return of Napoleon from Elba, Louis XVIII. deposited a large sum in Laffitte's hands; and after the battle of Waterloo, Napoleon intrusted 5,000,000 francs to him, which he kept safe, although the government made some attempts to lay hold of it. After the second restoration, he became one of the opposition in the chamber of deputies, and enjoyed the highest popularity in Paris. When the revolution broke out in 1830, he wrote to the duke of Orleans, saying, "You have to make your choice between a crown and a passport." He freely supplied the money requisite on that occasion. He became one of the first ministry of the new king, and in Nov., 1830, was intrusted with the formation of a cabinet, the conservative character of which caused the loss of his popularity. Meanwhile his banking affairs fell into confusion, and he was obliged to sell all his property to pay his debts. A national subscription preserved him his hotel in Paris; and being again elected to the chamber as a deputy for Paris, he became a leader of the opposition. From the ruins of his fortune he founded a new discount bank. As the government receded more from the principles of the revolution of 1830, Laffitte became more active in opposition. In 1843, to the great displeasure of the court, he was elected president of the chamber of deputies. He died, May 26, 1844.

LAFITAU, Joseph François, 1670–1746; b. Bordeaux, France. He was sent as a Jesuit missionary to Canada in 1712, and assigned to the Iroquois mission at Sault St. Louis, on the St. Lawrence. The room occupied by him there is still shown. In 1716 he discovered and identified the ginseng plant, so highly esteemed in China for its medicinal properties. He returned to France in 1717, and published an account of his discovery, which led to a trade in ginseng between America and China. During his stay in Canada he devoted himself diligently to a study of the Indian character, and the results of his observations were published at Rome in 2 vols. 4to, 1724.

LAFITTE, Jean, b. about 1780; a Frenchman, who held a commission as a privateer during the war between France and Spain, and was afterwards commissioned by Carthagena for similar service. This service degenerated, however, into piracy; and Barataria bay in Louisiana became the rendezvous of a horde of adventurers and unscrupulous sailors, among whom the brothers Lafitte were pre-eminent, becoming the terror of traders in the gulf of Mexico. The outbreak of the war between the United States and Great Britain closed the unlawful career of Lafitte and his comrades. The British made overtures to him, hoping that he might be induced to attach himself to their interests. In the mean time an expedition was sent out by the Americans, under commodore Patterson, designed to break up the stronghold at Barataria bay, and capture the pirates; but this design was frustrated by the flight of the latter. The anticipated attack on New Orleans induced the governor of Louisiana and gen. Jackson to issue a proclamation inviting Lafitte and his men to unite in the defense of that city. The invitation was accepted, and the outlaws conducted themselves during the battle with such courage and fidelity that president Madison issued a proclamation early in 1815, recounting their services, and according them free pardon for their past misdeeds. There exists no record of the subsequent career of Jean Lafitte. His career was put to use by the rev. J. H. Ingraham, who founded upon it a romance.

LA FLÊCHE, a t. of France, on the river Loire; pop. about 10,000. It has a palace built by Henry IV., now used for a Jesuit school; a picture gallery, and a library of 20,000 vols.

LA FONTAINE, Jean de, a French poet, distinguished above all his countrymen as a fabulist, was the son of a maître des eaux et forêts, and was b. July 8, 1621, at Château-Thierry, in Champagne. In his early youth he learned almost nothing, and at the age of 20, he was sent by his father to the oratory at Rheims, in a state of extreme ignorance. Here, however, he began to exhibit a decided taste for the classics and for poetry. Though selfish and vicious to the last degree, he possessed withal a certain child-like *bonhomie;* it was not grace, or vivacity, or wit, but a certain soft and pleasant amiability of manner, so that he never wanted friends. He successively found protectors in the duchess de Bouillon, who drew him to Paris; in Mme. de Sablière, and in M.

and Mme. Hervart. He enjoyed the friendship of Molière, Boileau, Racine, and other contemporary celebrities; and even the saintly Fenelon lamented his death in extravagant strains. In 1693, after a dangerous illness, he carried into execution what a French critic characteristically terms his *projet de conversion*, and spent the brief remainder of his life in a kind of artificial penitence, common enough among licentious men and women in those sensual days. He died at Paris, April 13, 1695. His best, which, however, are also his most immoral productions, are *Contes et Nouvelles en Vers* (Paris, 1665; 2d part, 1666; 3d part, 1671), and *Fables Choisies mises en Vers* (also in three parts, of which the first appeared in 1668, and the third in 1693). The editions of the *Fables* have been innumerable. The best edition of La Fontaine's collected works is that of Walckenaër (18 vols. Paris, 1819–20; improved, in 6 vols. 1822–23). See Taine's *Essai sur les Fables de La Fontaine*, 1860.

LA FOURCHE, a bayou in s e. Louisiana, one of the outlets of the Mississippi, beginning at Donaldsonville on the right bank, and stretching s.e. through the parish of La Fourche Interior to the Mexican gulf, a distance of 150 miles. It is navigable for 100 m. from its mouth, and the channel of an extensive commerce with the interior.

LA FOURCHE, a parish of s.e. Louisiana, bordering on Barataria bay, and intersected by bayou La Fourche; 1100 sq.m.; pop. '80, 19,113. The surface is level, and the soil, except where it is too low and wet for cultivation, is very productive. The Louisiana and Texas railroad passes through the parish. The principal productions are corn, sweet potatoes, rice, sugar, and molasses. Capital, Thibodeux.

LA FUEN'TE, Modesto, b. 1806. He was for a time professor at Astorga, and afterwards a satirical journalist at Leon and Madrid. His periodical writings were very popular, but his chief work is a *History of Spain* in 26 vols.

LAGER BEER, or Lager-bier. In the article Beer the process of manufacture of beer or ale and the principles of beer fermentation are given. The kind of fermentation there described, however, is performed at a higher temperature than that which is employed for making a kind of beer introduced by the Germans, called by them lager-bier The yeast in ordinary fermentation is developed rapidly and rises to the top, and is called top-yeast. The buoyancy is caused by the rapid evolution of carbonic acid gas, which, adhering to the yeast, causes it to ascend in the liquid. The fermentation of lager beer takes place very slowly. The wort is prepared in much the same manner as for ale, and is pumped from the hop-back into shallow coolers placed in the upper stories of the brewery, and is also passed through a refrigerator until it is reduced to a temperature of about 45° F. Thence it is carried in pipes to large fermenting tuns, placed in cool cellars, or in chambers cooled by ice, having a temperature of 40° to 45° F. Here yeast is added, which, in the course of about three days, incites fermentation, which is manifested by the appearance of minute bubbles of carbonic acid gas, which, as in the fermentation of ale, carry a little of the yeast with them. This does not, however, remain there, but, discharging the gas to which it had adhered, settles to the bottom in the form of a viscous mass, which, with that which remains there, constitutes what is called bottom-yeast. The slow fermentation employed in the process of making genuine lager beer causes a clarification and the commencement of a ripening which affords a beverage free from the objectionable qualities of the common beer which goes under the same name, but which is known to brewers under the name of *Schenckbier*, or *present-use beer*. This is fermented in a much shorter time, but the fermentable matter is not all eliminated as in the genuine article, but for the purpose of neutralizing what acetic acid might appear from acetous fermentation, or for producing by union with it an additional quantity of carbonic acid gas to give it "life," the brewer adds in the operation of casking a quantity of bicarbonate of soda, immediately upon which the bung is driven in, and the beer is ready for market. Genuine lager, however, lies a long time to ripen, and attains certain qualities not possessed by any other kind of beer, and highly prized by lovers of this beverage. The number of breweries of all kinds making both ale and lager beer in the United States in 1880 was 2,271. Of these, 2 produced between 200,000 and 250,000 barrels each; 2 between 150,000 and 200,000; 7 between 100,000 and 150,000; 10 between 75,000 and 100,000; 22 between 50,000 and 75,000; 302 between 10,000 and 50,000; 198 between 5,000 and 10,000; 937 between 500 and 5,000; and 784 less than 500 barrels. There is no report of the number of breweries and amount of product assigned severally to the two kinds, ale and lager beer.

LAGERSTRŒ'MIA, a genus of plants of the natural order *lythraceæ*, the type of a suborder *lagerstrœmieæ*, which is distinguished by winged seeds, and in which are to be found some of the noblest trees of tropical forests, whereas the true *lythreæ* are generally herbaceous. *Lagerstrœmia reginæ* is the Jarool of India—a magnificent tree, with red wood, which, although soft, is durable under water, and is therefore much used for boat-building.

LAGO MAGGIORE. See Maggiore, Lago.

LAGO MAGGIORE, or Lake of Locarno, the largest of three lakes in northern Italy, the other two being Como and Lugano. It lies between the Italian states of Piedmont and Lombardy and the Swiss canton of Ticino, its main outlet being the river of the latter name. It is 40 m. in length and from 2 to 5 m. in breadth. The necessities of

the surrounding country give rise to a considerable trade, which is conducted by numbers of vessels that navigate the lake, while steamers connect the principal towns on its banks. Large forests of fine timber and extensive marble quarries have given rise to productive industries. The lake offers fine subjects for artists, and has been often painted from various points.

LA'GOMYS, a genus of rodent quadrupeds, of the family *leporidæ*, much resembling hares or rabbits, but with limbs of more equal length, more perfect clavicles, longer claws, longer head, shorter ears, and no tail. They are interesting from their peculiar instincts, storing up herbage for winter use in heaps or stacks. The ALPINE LAGOMYS, or PIKA of Siberia (*L. Alpinus*), the largest of the genus, is scarcely larger than a guinea-pig, yet its stacks are sometimes 4 or 5 ft. high, by 8 ft. in diameter, and often afford adventurous sable-hunters the food necessary for their horses. The little animals live in burrows, from the inhabited part of which galleries lead to the stacks. The herbage of which they are composed is of the choicest kind, and dried so as to retain much of its juices, and form the very best of hay.

LAGOON' (Lat. *lacuna*, a hollow or pool) is a species of lake formed by the overflowing either of the sea or of rivers, or by the infiltration of water from these; and hence lagoons are sometimes divided into fluvial and marine. They are found only in low-lying lands, such as the coasts of Holland, Italy, the Baltic, and the e. coast of South America; are generally shallow, and do not always present the same aspect. In some cases, they are completely dried up in summer; in others, after being once formed, they preserve throughout the whole year the character of stagnant marshy pools; and in others, again, the sea, which reunites them to itself in winter, is separated from them in summer by a bar of sand or shingle.

LA'GOS, a t. and island of Africa, on the coast of Upper Guinea. The island lies at the entrance to a lagoon of the bight of Benin, near the mouth of the river Ogun; the town is at the w. end of the island, 150 m. w. of Benin. A number of English and other traders reside here, and the town contains many good houses built in the English style. Lagos was formerly a notorious seat of the slave-traffic. It was captured and destroyed by the British in Dec., 1851, and a treaty was concluded by which the ruler guaranteed freedom of commerce, the protection of Christianity, and the abolition of the slave-trade and of human sacrifices. Pop. of the island '81, 75,270. Lagos since 1861 has been a British possession. Value of imports '73, £258,884; exports, £406,986.

LA'GOS, a city and seaport of Portugal, in the province of Algarve, on a wide bay, 23 m. e.n.e. from the extremity of cape St. Vincent. The harbor affords protection from n. and w. winds only, and accomodates only small vessels. A productive tunny-fishery is carried on in the vicinity. Pop. 6,800. In the bay of Lagos, admiral Boscawen obtained a signal victory over the French Toulon fleet, Aug. 18, 1759.

LAGOS, a city of Mexico, the capital of a canton of the same name in the state of Jalisco, near the frontier of the state of Guanajuato; pop. about 25,000. It is noted for its fine churches and manufactories, and for the deposits of iron ore in the immediate vicinity. It is in a central position in the country, and on this account is to be the place of junction of three railroads, which will connect it respectively with the city of Mexico, with the Rio Grande, and with the Pacific.

LAGOSTA, the ancient Lastobon or Ladestris, an island in the Adriatic, off the coast of Dalmatia, belonging to Austria; 63 m. n.w. from Ragusa; 6 m. long and 4 wide; pop. 1200. Its coast is guarded by steep cliffs and indented by several creeks; the interior is mountainous. It is surrounded by several small islands. On the n. side is the village of Lagosta with a small port.

LAGOSTO'MUS, a genus of the family chinchillidæ, order rodentia, of South America. They have a more rat-shaped body than the genus *lagotis*, but still many of the characteristics of the rabbit. Their fore-feet have four toes and no pollex or thumb, as in that genus, but upon the hind-feet there are only three toes. Ears and tail considerably shorter than in *lagotis*. The principal species, *L. trichodactylus* (*dipus maximus* of De Blainville, *marmot Diana* of Griffiths, *Callomys viscacia* of Geoffroy and d'Orbigny), is the viscacha of the South American pampas. Much has been written about these interesting animals by travelers. The abbé Jolis, who lived 12 years in South America and made three journeys into the remote districts of the interior, gives an interesting notice of their habits; and Darwin, in his *Journal*, gives them particular attention. They form vast burrows or underground villages, the old, according to the abbé, living separately from the young. Darwin says that their most favorite sites for burrowing are those parts of the plain which, during one-half of the year, are covered with great thistles to the exclusion of other plants. In the evening they come out in numbers and sit upon their haunches, appearing at such times to be very tame. Their flesh when cooked is very white and good, but is seldom eaten. They have a very singular habit of collecting various kinds of objects, such as stones, the bones of animals, thistle stalks, etc., near the mouths of their burrows, sometimes forming piles as large as a common bushel basket. Dental formula is the same as in *lagotis* (q.v.). See CHINCHILLA.

LAGO'TIS, or LAGIDIUM, a genus of the family chinchillidæ, order rodentia. There are two species, *L. Cuvieri* and *L. pallipes*. They inhabit the western declivities of the

Andes in Chili, Peru, and Ecuador; are known as the mountain viscachas, in contradistinction to the viscachas of the plains (lagostimus). Some regard the species *L. Cuvieri* as alone being the true viscachas of authors, from Pedro de Cieça downwards; but both species are generally called mountain viscachas. The *L. Cuvieri* is of the size and general form of the rabbit; hind limbs twice as long as the fore limbs; tail, length of the body exclusive of head; whiskers numerous, closely set, jet black; ears, 3 in. long by 1 in. wide, with margins nearly naked at base. Fore and hind feet alike, with four toes only, and no vestige of a pollex; claws concealed by long bristly hairs. The fur is long, soft, and very beautiful, but readily falls out unless carefully handled. The general color is a mottled grayish ash, rather yellowish on the sides of the neck and body. In *L. pallipes* the fur is rather thinner and shorter than in the other species, and on that account feels rather softer, and that of both is inferior to the fur of the genus *chinchilla* (q.v.) The dental formula in both species is as follows: incisors $\frac{1-1}{1-1}$, molars $\frac{4-4}{4-4}$ = 20.

LA GRANGE, a co. in n.e. Indiana, bordering on Michigan, and drained by Pigeon river; 384 sq.m.; pop. '80, 15,630. It has a level surface and a fertile soil, and a considerable portion of the area is in forest. The Grand Rapids and Indiana railroad passes through. The chief productions are wheat, corn, oats, potatoes, wool, butter, hay, and live stock. There are in the county manufactories of carriages, woolen goods, flour, lumber, etc. Capital, La Grange.

LAGRANGE, Joseph Louis, Comte, one of the greatest of mathematicians, was b. at Turin in 1736. He was of French extraction, and was the grandson of Descartes. When still a youth he solved the isoperimetrical problem of Euler, and when scarcely 19 years of age was appointed professor of mathematics in the artillery school in Turin. Frederick the great appointed him to be Euler's successor, as director of the academy at Berlin, in 1759. After Frederick's death, Naples, Sardinia, Tuscany, and France strove for the honor of offering Lagrange a better position. He accepted the offer of France, and took up his quarters in the Louvre in 1787, obtaining a pension of 6,000 francs (£238). In 1791 he was chosen a foreign member of the royal society of London, and the same year the national assembly confirmed to him his pension, and he was appointed one of the directors of the mint. He was in great danger during the reign of terror, but escaped, and was afterwards professor in the normal and polytechnic schools. Napoleon made him a member of the senate, bestowed on him the grand cross of the legion of honor, the title of count, and many other favors. He died April 10, 1813, and was interred in the Pantheon. His principal works are: Memoirs "on the Motion of Fluids" and "the Propagation of Sound;" another memoir refuted D'Alembert's views regarding the theory of the earth's formation. When only 24 years of age, he published his *New Method*, subsequently known as the *Calculus of Variations*, thus adding a new and powerful weapon to the philosophical armory. In 1764 his memoir on the "Libration of the Moon" carried off the first prize at the academy. It was in this treatise that he showed the extent and fruitfulness of the principle of "virtual velocities" which he afterwards so successfully applied to mechanics. Next appeared his works on the solution of "numerical" and "algebraic" equations; and in 1787 his *Mécanique Analytique*, a work in which mechanics is reduced to a mere question of calculation. His last important works were: *Calcul des Fonctions Analytiques; Traité des Fonctions;* and *Résolution des Equations Numériques.* Lagrange made many other important investigations in pure and mixed mathematics, and particularly in astronomy—the chief subjects of which are: the problem of three bodies, the long inequality of Jupiter and Saturn, the moon's secular inequality, attraction of ellipsoids, perturbations of Jupiter's satellites, diminution of the ecliptic, variation of the elements of the planetary orbits, etc.

LA GRANJA, or San Ildefon'so, a small t. in the province of Segovia, Spain, 34 m. n.n.w. of Madrid, celebrated for its romantic situation on the northern declivity of the Sierra Guadarrama, and for a beautiful palace built by Philip V., 1724–27, at an elevation of nearly 4,000 ft., with pleasure-grounds in imitation of Versailles. One of the fountains rises 150 feet. It was formerly the summer residence of the royal family, and it was here that queen Christina was surprised in the night of Aug. 16, 1836, by leaders of the liberal party, who had bribed her guards, and compelled to enter into an agreement to restore the constitution of 1812. Philip V. and his queen are buried in the church of this town. The royal family has several villas and parks in the neighborhood.

LAGRIMO'SO, an Italian term used in music, meaning weeping, or mournfully; similar to *lamentoso*, which expresses the same, but in a higher degree. The delivery should be heart-stirring, but at the same time free from all mannerisms and embellishments.

LA GUAYRA, the principal sea-port of Venezuela, in South America, stands on a narrow strip of land between the mountains and the sea, and is about 5 m. from Caraccas, of which it is the port. The town, which is strongly defended, has a pop. of about 7,000. The harbor is an open roadstead of the Caribbean sea, and the anchorage is unsafe; but the trade of the port, which is entered annually by about 200 vessels, is extensive. The imports in 1874 were valued at about £786,000. The chief exports of

La Guayra are coffee, cotton, cocoa, and hides. The principal imports are woolens, calicoes, guns, cutlery, and china-ware from Great Britain; wines from France and Germany; flour, wheat, petroleum, machinery, and cotton goods from the U. S. of America.

LA GUÉRONNIÈRE, Louis Etienne Arthur, Vicomte de, a conspicuous French politician of the present century, was b. in 1816, of a noble family of Poictiers. He first attracted notice by the articles which he contributed to the *Avenir National* of Limoges, about 1835. Subsequently, he made the acquaintance of Lamartine, whom for many years he regarded both as his political and literary master. Ultimately he came to a rupture with Lamartine, and became an ardent Bonapartist, and after the *coup d'état* (Dec. 2, 1851), the apologist of that audacious deed. In 1853 he entered the council of state. La Guéronnière stood so well in the good graces of the late French emperor that his articles and pamphlets were considered to possess a semi-official value. In 1868 he went as ambassador to Brussels, and afterwards to Constantinople. On the downfall of the empire he was imprisoned for a time. He died Dec. 23, 1875. Among his most noted publications are—*L'Empereur Napoléon III. et l'Angleterre* (1858); *L'Empereur Napoléon III. et l'Italie* (1859); *Le Pape et le Congrès* (1859); and *La France, Rome, et l'Italie* (1861).

LA HARPE, Frédéric César de, 1754–1838; b. Switzerland; having imbibed strong republican principles in his youth, was dissatisfied with the political condition of his country, and even contemplated emigrating to America to aid the cause of the revolting colonies. He was dissuaded from this intention through an appointment as tutor in the family of a Russian nobleman, and his success in this position having reached the knowledge of the empress Catharine II., she appointed him to the charge of Alexander and Constantine, the two sons of the czarowitz. In addition to this honor, La Harpe received the appointment of col. in the Russian army. His tendency to republican theories having induced him to support the French revolution by his writings, and as he sought to effect a reorganization of the Swiss confederacy into the form of a republic, Catharine dismissed him from his position, but provided that he should receive a life-pension on account of his previous services. He now threw himself with ardor into the prosecution of his plans for the regeneration of Switzerland—plans which, through the intervention of France, he was enabled to carry to an apparently successful conclusion. The presence of French armies at Bern enforced the establishment of the republic of 1798, and La Harpe became a powerful and active member of the new government. But this condition of affairs was short-lived. Napoleon restored temporarily the old cantonal system, and La Harpe was forced to retire to France, where he continued to reside until after the congress of Vienna and the establishment of the independence of Switzerland, when he made his home at Lausanne. The latter part of his life was devoted to the promulgation of his liberal political theories.

LA HARPE, Jean François de, 1739–1803; b. Paris; began his literary life at a very early age by inditing satirical verses, which brought him under severe discipline, at the hands of the government. He next devoted himself to dramatic writing, but though meeting with some success, it was not to his mind commensurate with the ability of his work, and he grew disheartened and dissatisfied. In 1766 he visited Voltaire at Ferney, and remained his guest during the next two years. Returning to Paris, he devoted himself to criticism, becoming a regular contributor to the *Mercure de France.* He obtained a general reputation for the severity of his judgments, which did not, however, prevent his success in his new department, and he won a number of prizes from the French academy. But, curiously enough, his chief reward was gained through the production of *Mélanie, ou la Religieuse,* a play which was the cause of his gaining a seat in the academy. It is a somewhat remarkable coincidence that while the Swiss statesman La Harpe was engaged in teaching the two sons of Paul, grand duke of Russia, the French critic La Harpe was in correspondence with the grand duke himself, this correspondence being afterwards published. La Harpe, like his namesake, was a strong republican, and an adherent of Robespierre, yet he was so little determined in his opinions that he was imprisoned during the existence of the directory, a fact which resulted in overthrowing in him all his former Voltairean ideas, and inclining him to the profession of positive religious views. La Harpe's chief work was the *Lycée, ou Cours de Littérature Ancienne et Moderne,* 12 vols., Paris, 1799–1805.

LAHIJAN′, an important trading t. of Persia, in the province of Ghilan, close to the southern shore of the Caspian sea, 30 m. e.s.e. of Reshd. Pop. estimated from 10,000 to 15,000.

LAHN, an important affluent of the Rhine (q.v.).

LA HONTAN, Armand Louis de Delondarce, Baron de, 1666–1715; b. France. He went to Canada in 1683 as a common soldier; made two excursions far into the then scarcely known regions of the lakes, and subsequently published several volumes describing the country and the Indian tribes between Montreal and Mackinac. Doubt was at one time thrown on the verity of his travels by the inaccuracy of his observations; but there is ample proof that at least he was at the points which he describes. He was in various military expeditions sent against the Indians; was at Michilimackinac and Sault St. Marie in 1688, at Green Bay in 1689, and claims to have been on the upper Mississippi

about this time. He returned to France in 1690; came back the next year; was bearer of dispatches from count Frontenac to the French government soon after. On his way to France the vessel in which he embarked put into Placentia bay, Newfoundland, where La Hontan aided in the defense of the port against an attack by the English with so much spirit that he received the appointment of lieutenant in Newfoundland and Acadia. Quarreling with the governor he was dismissed from the French service, escaped to Portugal, and thence made his way through Spain to Denmark and England. In 1703 he published at the Hague in Holland his adventures in America under the title *Nouveau Voyage dans l'Amerique Septrionale, comprénant Plusieurs Rélations des Différents Peuples qui l'habite*, etc., in 2 vols. In 1703 he published at Amsterdam one volume in continuation, entitled *Suite du Voyage de l'Amerique*, etc. His accounts of the lake region of America were misleading to the geographers of his time, and contain so much of fiction as to be now valueless.

LAHORE', one of the chief cities of the Punjab, stands on the left bank of the Ravi, the middle of the five rivers which give name to the country; lat. 31° 36′ n., long. 74° 21′ east. It is surrounded by a brick wall, formerly 25 ft. high, and by fortifications 7 m. in circuit. In the n.w. corner of the city stand the citadel, the great magazine, and military workshops. The streets are narrow and gloomy, the bazaars well furnished, but the houses in general insignificant. Within the circuit, wells are abundant; the ground is well cultivated, adorned with magnificent gardens, and strewn with numerous ruins of a bygone splendor and prosperity. The present town, which has a population of (1868) 98,924, is said to have possessed under the Moguls 1,000,000 inhabitants. In the 12th c. it was the capital of the dynasty of the Ghaznevides, and subsequently a favorite residence of the successors of Baber. In 1799 Runjeet Singh, the Sikh prince, became ruler of Lahore; but as he chose for his head-quarters Amritsir, a city about 40 m. to the e., Lahore became much neglected. Since 1849, the epoch of the British conquest of the Punjab, Lahore has advanced in commerce and wealth. More especially, however, has the change of masters been beneficial to education. A seminary not only for imparting Hindu and Mohammedan literature, but also for communicating, through vernacular languages, European knowledge, has been successfully established, and has about 500 pupils. Lahore is connected by railway with Amritsir and also with Multan and the wharves on the Chenab river there. There is also a university college, an hospital and medical school, a museum, etc.

LAHR, a manufacturing t. of Baden, situated on the Shutter, an affluent of the Rhine, 53 m. s.s.w. of Carlsruhe. It stands in a rich and beautiful district, and carries on considerable manufactures of linen and woolen cloth, silk ribbons, leather, and tobacco. Pop. '80, 9,390.

LAHRBUSH, Frederick, Captain. See page 894.

LAH'SA, or El Ah'sa, the name of an independent dominion, situated on the eastern shore of Arabia, in lat. 25° 25′ n., long. 49° 45′ e., comprising an extensive, well-watered, and fertile valley, and having a large capital, well built and prosperous. Dates and camels are the greatest sources of wealth, but the soil produces wheat, millet, and all kinds of fruits and vegetables. The population of the district numbers 50,000, that of the town 10,000. The government pays a small annual tribute to the sultan.

LAI'BACH, or Laybach, a t. of Austria, capital of the crownland of Krain or Carniola, lies in an extensive plain on a river of the same name, 50 m. n.e. of Trieste. It contains a lyceum, gymnasium, and other educational institutions, and carries on an extensive transit-trade with Trieste, Fiume, Grätz, etc. Its cotton-manufactures and sugar-refineries afford employment to a considerable number of its inhabitants. To the s.w. of the town is the Laibach morass, which formerly was frequently covered by the swollen waters of the river. It is upwards of 80 sq.m. in extent, and three-fourths of it have been brought under cultivation; the remainder affords an inexhaustible supply of turf. Pop. '80, 26,284.

This town is famous for the congress of monarchs which met here in 1821. The purpose of this congress was to secure the peace of Italy against carbonarism, to arrest the then increasing progress of revolution, and to restore in Naples and Sicily the former condition of affairs. The result of it was the passing of a resolution establishing among European nations the right of armed intervention in the affairs of any neighboring state which may be troubled with factions. In this congress the British minister refused to take part.

LAID'LIE, Archibald, d.d., 1727–78; b. at Kelso, Scotland; educated at the university of Edinburgh; entered the Presbyterian ministry in 1759, and for the next four years was pastor of the Scotch church at Flushing, Holland. Here he acquired a knowledge of the Dutch language and of the theology of the Reformed (Dutch) church. Having connected himself with this denomination, he was called to the pastorate of the Collegiate church in New York, and on April 15, 1764, preached in the Middle Dutch church, corner of Cedar and Nassau streets, the first English sermon ever addressed by a regular pastor to an American Dutch congregation. His ministry in New York was successful and popular. Soon after the beginning of the revolutionary war he retired to Red Hook, N. J., where he died.

LAING, Alexander Gordon, 1794–1826; b. Edinburgh. Having entered the British army, he served some years in the West Indies, and was in 1820 aide-de-camp to the governor of Sierra Leone. He was employed in negotiations with native chiefs for the suppression of the slave-trade and while so engaged explored the upper course of the Niger. On returning to England he was promoted to the rank of major, and in 1826 attempted an overland journey, with a caravan of native traders, from the Mediterranean to the gulf of Guinea, but was murdered near Timbuctoo. He published an account of his earlier explorations under the title of *Travels through the Timannee, Kooranko, and Soolima Countries to the Sources of the Rokelle and Niger.*

LAING, Malcolm, 1762–1818; b. on the island of Mainland, Orkneys; educated at the university of Edinburgh, and admitted to the bar in 1785. His life, however, was mainly devoted to literature. He wrote a continuation of Henry's *History of Great Britain*, and a *History of Scotland from the Union of the Crowns to the Union of the Kingdoms*, embracing dissertations on the Gowry conspiracy, and on the Ossian poems, and, in the second edition, an essay arguing the guilt of Mary queen of Scots in the murder of Darnley. He was elected a member of parliament in 1807; died in the Orkneys.

LAIRD, John, 1805–74; was b. in Greenock, Scotland. He was (1829) the first builder of iron steamships, and for a long time the head of the firm of John Laird & Sons, iron-ship-builders and engineers at Birkenhead, near Liverpool. He was the builder of the confederate privateer Alabama, in consequence of which his name became unpleasantly familiar to the loyal people of the United States. He held several offices of responsibility, and was a member of parliament from 1861 until his death at Birkenhead.

LAIRESSE, Gérard de, 1640–1711; b. Liege. His father, a successful painter, urged his son to the study of literature, history, and music, in which he made rapid attainments; but to paint was his dominant passion, which developed so rapidly that at the age of 15 he excelled in portraits, and was already composing historical paintings for the electorate of Brandenburg. Extravagant in his tastes and pleasures, notwithstanding an extraordinary facility in work, he was always embarrassed. When at work he played the violin and painted alternately. In energy and rapidity of execution he equaled Rubens. He excelled in architectural effects, and in general his compositions were remarkable for grace and animation. Several of them are in the Louvre; in Holland and Belgium they abound. He became blind in 1690, and then composed a treatise on painting, published after his death, which occurred in Amsterdam.

LA'IS, the name of one, or, more probably, two Greek courtesans, celebrated for extraordinary beauty. The elder is believed to have been born at Corinth, and flourished during the Peloponnesian war. She was reckoned to possess the most graceful figure of any woman of her time in Greece, but she was capricious, greedy of money, and in her old age became a tippler.—The younger appears to have been born in Sicily, but came to Corinth when still a child. She sat as a model to the painter Apelles, who is said to have recommended her to adopt the profession of a prostitute, in which she obtained a "bad eminence." She was stoned to death by some Thessalian women whom she had made jealous. Both of these women had temples erected to their memory.

LA'ITY (from the Gr. *laos*, the common people), the name given in the Roman Catholic church to all persons who do not belong to the clergy (q.v.). The name appears to have originated as early as the 2d c., when the idea grew up that the priesthood formed an intermediate class between Christ and the Christian community. The influence which the laity had at first exercised in the government of the church gradually declined as the power of the hierarchy increased, and although, as late as the end of the 3d c., cases occur in which learned laymen taught publicly with the approval of bishops, still this liberty was ever more and more narrowed, until finally, in 502, a synod, held at Rome under the bishop Symmachus, forbade laymen to interfere in any way in the affairs of the church. The Protestant church, in general, maintains on scriptural grounds the common and equal priesthood of all Christians; still, as marking a visible distinction of office, the words continue in very general use, the depth of the distinction implied varying with the "church" views of those employing them. Some very strict Protestants are careful to say minister and people, instead of clergy and laity.

LAJARD, Jean Baptiste Felix, 1783–1858; b. France. Attached in 1807 as secretary to the French ambassador to Persia, he spent three years traveling in that country, exploring its antiquities, studying oriental religions, and forming a collection of Babylonic curiosities of cylindric form which is in the national library in Paris. In 1815, while in government employ at Marseilles, he resumed archæological studies, and won the prize offered by the academy of inscriptions and belles-lettres upon the question of the origin of Mithradaic culture. He wrote upon the origin of the Aryan race, advancing an original theory since accepted by the learned. His published works are numerous, mostly archæological.

LAKANAL', Joseph, 1762–1845; b. France. Educated for the priesthood, but not ordained, he became a teacher, an enthusiastic participant in the great reforms of the French revolution, and one of the founders of a system of free education which was then decreed. An enthusiast for the transformation of society which he thought would result from the principles of the revolution, and moving with the turbulent tide of

revolutionary ideas, he voted for the death of Louis XVI. in 1792. Soon after he was made a member of the committee of public instruction, of which his energy soon made him head. He initiated most of the important reforms in the direction of universal education in France. In 1793 he procured decrees for the protection of the academy of science, for the regulation of property in literary and artistic works, for the establishment of the telegraph invented by Chappe, which up to that time had been neglected and opposed. In 1794–95 he proposed and obtained the laws for the organization of the normal school; the school for oriental languages; the bureau of longitudes; and the general system of primary and central schools. Through his efforts the *jardin des plants* was preserved and made a national museum of natural history. Elected to the council of 500 after the fall of Robespierre, he lost no time in submitting a plan for the organization of the national institute, which is now an honor to France; and was charged to designate the 48 original members who would elect the others. Lakanal was chosen by these to act with Sieyès to draw the rules for its government. In 1798 he was made commissary-general of the departments of the Rhine, to reform abuses and laxity of administration that had become shameful. His energy and probity justified the confidence in his administrative ability; and his extraordinary activity in provisioning and otherwise preparing Mayence and the Rhine for an efficient defense against the allies was warmly recognized by the French directory. After Napoleon's assumptions of power Lakanal occupied subordinate positions in educational institutions. On the accession of Louis XVIII. he was proscribed as a regicide, and came to the United States. President Jefferson gave him a distinguished welcome. Congress voted him 500 acres of land, and he was offered and accepted the presidency of the state university of Louisiana. In 1825 he resigned to retire to a plantation on the shore of Mobile bay, being the land given him by the government. On the accession of Louis Philippe in 1830 Lakanal offered his services to the new government, but was not recognized until several years later, when, on the motion of Geoffroy de St. Hilaire, he was restored to membership in the French academy; and returned to Paris in 1837. His literary works are few, his talent being more administrative than scholastic.

LAKE (Lat. *lacus*) is a portion of water surrounded by land. There are (1) some lakes which neither receive nor emit streams; (2) some, fed by springs, emit, but do not receive streams; (3) others, as the Caspian and Aral seas, receive rivers, but have no visible outlet; but (4) by far the greater number both receive and emit streams. Almost the whole of the lakes coming under the third class are salt or brackish; lake Tchad, in central Africa, forming one of the most prominent exceptions.

LAKE (*ante*). The lake on land is what the island is in the sea; the one being surrounded by water, the other by land. Lakes differ from lagoons (q.v.) in their origin; and from ponds in being fed by streams, either flowing at the surface, or subterraneous; while a pond, however large, is only the accumulation of water in a hollow: if it be regularly fed it becomes a lake, though small. The principal difference in lakes consists in the processes by which they receive and distribute their waters. Some have no apparent affluents nor outlet, others have affluents without any visible outlet, some have an outlet without any visible affluents, and others, again, have affluents and outlet, both visible. Lakes without outlets have the level of their waters horizontal, that is, parallel to the curvature of the earth; while those which have affluents and outlets are, on the contrary, more or less out of the horizontal level, sometimes, as in the case of Lago Maggiore, as much as 3 in. in a mile. The sheets of water which are so numerous in the country n. of the Caspian sea, in the plains between the Ural mountains and the Irtish river, and in the great steppe between the latter stream and the Ob, are most of them ponds, formed by accumulated rain-water and melted snow, though some of them are 10 or 12 m. in circumference. Lakes or ponds of this character sometimes occur in the craters of extinct volcanoes, as in the case of one near Mendoza in the state of La Plata, which is 4,000 or 5,000 ft. above the sea, and is in some way connected with the active volcano of Antuco, since it frequently, when the latter is in eruption, pours a stream of muddy water over the adjacent district. The small lake of Nemi, about 20 m. from Rome, is undoubtedly in the crater of an extinct volcano; as are also the celebrated lake of Averno, and those of Bolsena and Bracciano. It is even believed that London stands on the site of what was once a lake of large size. The Caspian, the sea of Aral, and the Dead sea are instances of lakes which are fed by affluents without possessing any visible outlet. It is believed that the Aral sea or lake once communicated with the Caspian, and it is a frequent phenomenon for lakes whose affluents have diminished or disappeared, to continue supplied with water from unseen sources; while in other instances more water is received into certain lakes than can be accounted for in their visible outlets. In the latter case evaporation has been assumed by Halley and others to be a sufficient explanation. In the case of the lake Neusiedel, which formerly communicated with the Danube by means of the Raab, into which it emptied its waters, it now has no communication except by a mere swamp. Such lakes as are without a visible affluent are fed by subaqueous springs. Such bodies of water are usually situated at considerable elevations above the level of the sea, one on Monte Rotondo, in Corsica, being at an elevation of 9,069 ft.; while lake Tahoe, in California, is said to be more than 6,000 ft. above the level of the sea, lake Titicaca, in the Bolivian Andes, 12,000

ft. above the sea-level, and even the surface of lake Superior 600 ft. above the sea. On the question as to the origin of the saltness of certain lakes, authorities differ. Some have thought that these bodies of water must owe their saltness to receiving the saline impurities of their affluents; but there are many salt lakes without affluents, and their saltness is doubtless due to their being fed by salt springs at their beds. The most common as well as the largest lakes are those which receive one or more tributary streams, and have a visible outlet. Such are the lakes of Switzerland and northern Italy; lakes Ladoga, Onega, Peipus, and Ilmen, in Russia; others in Finland, Sweden, Lapland, etc.; the African lakes, the Tchad, the Ngami, Nyassa, and Victoria Nyanza; and the great lakes of North America, Superior, Huron, Erie, and Ontario. The origin of lakes differs as materially as their nature. Some occur through the sinking of the soil by the falling in of subterraneous caverns; and of this kind lake Baikal is an illustration. Others are formed by the action of earthquakes, as occurred in the province of Quito in 1797. The Oschenen-see, in the canton of Berne, was caused by the fall of a mountain; and the lakes Aidat and Cassiere, in Auvergne, France, by lava currents damming up a stream. Finally, it is believed that many are the remains of the universal ocean which once covered the earth. There are many curious phenomena connected with lakes. Some have floating islands upon them, as occurs in the case of a small lake near St. Omer; and in lake Gerdass, in Prussia, which has a floating island on which a hundred head of cattle may be seen pasturing; lake Kolk, in Osnabruck, Prussia, on which fine elms are growing; and lake Rålang, in Smolend, Sweden, where, it is said, a small island appeared and disappeared ten successive times between 1696 and 1766. At Jemtia, in Sweden, there is said to be a lake having a double bottom, whose alternate rise and fall changes the apparent depth of the lake. In Poland there is a lake supposed to be impregnated with sulphureted hydrogen, which is said to turn to a brown color the skin of those who bathe in it. Certain lakes are intermittent, a condition supposed to arise from a play of natural siphons which act as their feeders, as occurs in the case of intermittent springs. The lake of Geneva is sometimes affected by a subaqueous wind, known as the *Vaudaise*, which rises to the surface and so disturbs it as to endanger navigation; and near Boleslaw, in Bohemia, there is a lake whose depth has never been sounded, from the bottom of which rise in winter fierce gusts of wind, having sufficient force to send into the air masses of ice weighing several hundred pounds. The lake of Geneva and other Swiss and Italian lakes experience another phenomenon, called the *Seiches*, which consists in a movement of the water in the nature of a tidal wave, rising sometimes to the height of 5 feet. Water-spouts are not infrequent on lakes, notably on the lakes of Zurich and Geneva. In lake Huron there is a bay over which electrical clouds are perpetually hovering, and it is alleged that thunder there is constant. This phenomenon is attributed to the proximity of the locality of the American magnetic pole. Near Beja, in Portugal, there is a lake which is said to announce the approach of a thunder-storm by a portentous rumbling; and in Siberia, Roaring lake is so named from a similar characteristic, not, however, connected with atmospheric disturbance. Certain lakes deposit carbonate of lime on objects immersed in them, producing the condition known as incrustation; others have the property of inducing petrifaction. The lake of Zurich displays at times a curious phenomenon, known as the flowering of the lake, when its surface becomes covered with a yellow scum or froth, examination of which has discovered it to be minute vegetation. But perhaps a phenomenon of still more remarkable peculiarity is that which is found to occur in certain lakes of Canada, in the strange adhesive property of the mud which forms their beds, and which appears absolutely to amount to attraction. In such instances it becomes nearly impossible to propel a boat, the mud clinging to its sides with such force as to overcome the influence of the paddles; loaded boats are said to be often in danger of sinking from this cause, and have to be towed over the dangerous spots by those that are lighter. Lake temperature varies greatly in different instances; loch Ness, in Scotland, 810 ft. in depth in its deepest part, is never known to freeze. Some lakes are remarkable for the transparency of their waters; lake Superior being a remarkable instance of this quality—so pellucid that fish and rocks are visible to an almost incredible depth. The Norwegian lakes exhibit also this peculiarity, the bed with its covering of shells or pebbles being plainly visible at a depth of 100 to 120 feet: in lake Wetter, also, in Sweden, it is said that a coin the size of an American cent can be seen at the depth of 120 feet. But the value of lakes to mankind does not lie in their excentricities, or even in their beauty as natural objects. They perform most important functions in the economy of the earth: acting as reservoirs of water in districts where the rain-fall is irregular; supplying moisture to the atmosphere through evaporation, and thus favoring vegetation in their neighborhood; and, in some cases, furnishing fisheries of great value. Many lakes are navigable, and are most important media of communication and transportation in thickly settled countries; while others, as the source of rivers that are invaluable to commerce, could illy be spared from the economy of civilization, as well as that of nature.

LAKE, a co. in n.w. California, nearly surrounded by the Bear mountains and Mayacamas mountains, divisions of the Coast range; 700 sq.m.; pop. '80, 6,596—5,537 of American birth, and 1,256 Chinese. Clear lake, 25 m. in length, occupies the central part, discharging, through Cache creek, into the Sacramento river. It has steep and rocky

mountains covered with pine, fir, and redwood, with thick underbrush, and yielding copper, gold, cinnabar, quicksilver, and marble. It had in 1876 one mining establishment of cinnabar, employing 75 men, with a capital of $250,000 and a product of $100,000. It contains Borax lake, which furnishes borax, and sulphur is found on the shores of Clear lake. The great valley of upper and lower Clear lake is extremely fertile, and on the hills is fine pasturage for horses, cattle, sheep, and swine, which are raised in great numbers. Value of all live stock in 1870, $314,210. Game abounds in the vicinity of the lakes, which are 112 m. from San Francisco, making it a great resort of sportsmen for both shooting and fishing; deer, bears, panthers, and foxes are numerous. Wheat, oats, barley, and wool are staple products, and fruit is advantageously cultivated. Value of real and personal estate in 1880, $1,177,014. Seat of justice, Lakeport.

LAKE, a co. in central Colorado, lying on the w. side of the Saguache range of the Rocky mountains, and comprising the peaks of Massive mount, Mt. Harvard, Mt. Elbert, La Plata peak, and a number of lesser spurs; about 12,500 sq. m.; pop. '80, 23,814—16,645 of American birth. It holds the head waters of the Arkansas river, which flows s.e. in the neighborhood of the mountains, and it is watered by its branches, and those of the Gunnison river, and two or three small lakes in the north. It has good grazing facilities. The river bottoms have a fertile soil, with a heavy growth of timber, producing wheat, barley, oats, potatoes, and hay. Value of farm products in 1880, $71,300. The value of the bullion product in 1881 amounted to over $12,738,000. It had in 1870, 13 placer mines, employing 72 men, with a capital of $55,450 and product of $60,485; also 2 quartz mines, employing 17 men above-ground and 19 in the drifts, with a capital of $20,000 and product of $67,500. Silver, gold, and lead are mined. It includes the flourishing mining city of Leadville, in the n.e. portion. Assessed value real and personal estate, 1880, $11,126,174. Seat of justice, Granite City.

LAKE, a co. in s.e. Dakotah, formed since the census of 1870; 576 sq. miles; pop. '80, 2,657. It is watered by lake Herman and a few small lakes in the central portion, and several small streams, affluents of the Vermilion and Big Sioux rivers.

LAKE, a co. in n.e. Illinois, has for its e. boundary lake Michigan, and for its n. the state line of Wisconsin. It is drained by the head waters of the Fox and the Des Plaines rivers. Its shore boundary is traversed by the Chicago, Milwaukee, and St. Paul railroad and the West Wisconsin division of the Chicago and North-western railroad; 460 sq. m.; pop. '80, 21,299—16,327 of American birth. The surface is made up of rolling prairies, having a dark soil, rich with every element of fertility. It has extensive tracts of timber, which grows luxuriantly on the banks of a number of picturesque little lakes, the largest being lake Pishtaka, in the western part, nearly 7 m. in length. Number of unimproved acres of woodland in 1870, 21,072. Among the manufactures are carriages, pumps, and bricks. It has a cheese factory, tanneries, currying establishments, and a brewery. The staple products are wheat, rye, Indian corn, oats, barley and buckwheat. Value of manufactures in 1880, $922,367. Value of live-stock, $1,632,632. Total value of farm production, '80, including betterments and additions to stock, $5,223,503. Assessed value of all estate, '80, $5,541,555. Seat of justice, Waukegan.

LAKE, a co. in n.w. Indiana, having for its n. boundary lake Michigan, for its w. the state line of Illinois, and for its s. the Kankakee river. It is watered by the Calumet river, and the Deep river, one of its branches, emptying into lake Michigan. Its northern portion is crossed by two great routes to Chicago—the Pittsburg, Fort Wayne and Chicago, and the Lake Shore and Michigan Southern railroads. The Pittsburg, Cincinnati and St. Louis railroad intersects it centrally; 480 sq. m.; pop. '80, 15,091—11,081 of American birth. The surface is flat and low, and sinks into deep marshes in the southern portion along the Kankakee river. It has sufficient timber-bearing tracts, and had in '70, 28,279 acres of unimproved woodland. The soil of the prairie land in the central portion is very fertile, and well adapted to the cultivation of grain. It produced in '80, 51,478 bushels of wheat, including bush. of winter wheat; 2,875 bush. of buckwheat, 833,288 of corn, 615,692 bush. of oats, and many galls. of sorghum; other products are butter, cheese, flax-seed, and potatoes. Value of all live stock in '70, $1,023,341, and 49,989 lbs. of wool were produced. Total estimated value, '80, of farm productions, including betterments and additions to stock, $968,925. It has five flour mills and a brewery; other manufactories furnish carriages and bricks. Assessed valuation of real and personal estate, $4,792,185. Seat of justice, Crown Point.

LAKE, a co. in Michigan, in the n.w. portion of the southern peninsula, near lake Michigan, and watered by the Memoosic, Pine, and Marquette rivers; the two first flowing into the Manistee river, and thence into lake Michigan, the latter discharging into the lake. The Flint and Père Marquette railroad crosses the southern portion, s. of which the country is dotted with picturesque little lakes; 576 sq. m.; pop. '80, 3,233. It has large forests of pine and sugar maple-trees, on a generally level surface. Number of farms in '70, 40, none over 50 acres, and 2,735 acres of unimproved woodland. Value of all live-stock, $6,992, principally sold for slaughter. Wheat, buckwheat, oats, and Indian corn are the principal products. Seat of justice, Chase.

LAKE, a co., in n.e. Minnesota, has lake Superior for its s. and e. boundary, giving it a triangular form; for its n. and n.w. border, Keewatin, a district of Canada attached

to Manitoba, with Lake of the Woods, 100 m. in length ; other smaller lakes and Arrow river complete the line. It is bounded on the n.w. by little navigable lakes that separate it from Hunter's island, and on the w. by St. Louis co.; about 3,000 sq. m.; pop. '80, 106. It has numerous little rivers, among them the Manito and Temperanee, flowing from small lakes in its center to lake Superior. The surface is thinly timbered and divided into high ridges of hills, with a eonsiderable growth of pine, and low, wet land. Of mineral deposits, copper, iron, and granite are known to be in great abundanee. It has very few farms, and those produce mostly wheat and barley. Assessed valuation of real and personal estate in '80, $119,077. Seat of justiee, Beaver Bay.

LAKE, a eo. in n.e. Ohio, on the s. shore of lake Erie, which forms its n. and w. border, and gives it a triangular shape. It is traversed by the Lake Shore and Michigan Southern railroad, passing in the vicinity of the lake, and is interseeted by the Painesville and Youngstown railroad passing through the center. The Grand and Chagrin rivers and numerous little rivulets flow through it, emptying into the lake ; 250 sq. m.; pop. '80, 16,326—14,717 of Ameriean birth. The surfaee is diversified, rising into slight elevations with corresponding depressions, giving, with occasional groves of beech, elm, pine, oak, and maple trees, a pleasing variety. Its forests furnish an abundance of timber, and the sugar-maple trees provide an important article of home eonsumption. Fruit is raised, of fine flavor and large size ; other produets are wheat, corn, oats, hay, barley, buekwheat, riee, and potatoes. Underlying it is a formation of Devonian shale, and other indications of the carboniferous period. Iron ore is found. The soil is a sandy loam and very productive. It contained in '70, 1,626 farms, and 30,576 acres of unimproved woodland. Total estimated value of all farm productions, including betterments and addltions to stock in '80, $1,043,925. Value of live stock, '70, $900,766. Value of home manufactures, $60,661. Among the industries are the manufacture of carriages, drugs and chemicals, explosives, tobaeco and eigars, iron castings, tin, eopper, and sheet-iron ware, and bricks. The water-power is utilized by flour and saw mills. Assessed valuation of estate, in 1880, $10,116,238. Seat of justiee, Painesville.

LAKE : eo., Oregon. See page 894.

LAKE, a eo. in n.w. Tennessee, has for its w. boundary the Mississippi river, which forms the w. frontier of the state ; and for the e. border, lake Reelfort and a braneh of the Obion, onee a confluent of the Mississippi ; leaving only a small seetion of the northern and southern lines to save it from becoming an island ; 150 sq. m.; pop. '80. 3,968—3,911 of Ameriean birth, and 691 colored. The surface is formed of level plains, subject to overflow, and overspread with forests of oak, hickory, gum, cypress and beech. The soil produces eorn, cotton, and pork. Its products in '70 were 414,570 bush. of Indian corn, 52 bales of cotton, 815 lbs. of wool, 4,382 bush. of sweet potatoes, 25,548 lbs. of butter, 1,880 galls. of sorghum, and 1,852 lbs. of honey. Some attention is given to the raising of live stock. Value of the mechanical and manufacturing products in '80, $42,500. Assessed valuation of real and personal estate, '80, $623,395. Seat of justiee, Tiptonville.

LAKE, Ill. See page 894.

LAKE, Gerard, Viscount, 1744–1808, b. England; entered the army when only 14 years of age, and fought in the seven years' war. He also served in America, with the duke of York in Holland, and was commander-in-ehief in Ireland during the troubles in 1797–98. In 1800 he was sent by the marquis of Wellesley to India, where he was in ehief command in the Deecan, and captured Delhi by an adroit strategic movement. He also took Agra, and eontinued his successful eampaign until he had totally defeated the restless and enterprising chief, Scindia, and gained possession of all his dominions north of the Chumbul river. Gen. Lake was now raised to the peerage by the title of baron of Delhi and Laswaree, and after the campaign of 1804–5, he was created a viscount. He died at Plymouth, Eng., of whieh plaee he had been appointed governor.

LAKE DWELLINGS, huts, or houses, built upon piles sunk in the beds of lakes, and which are found in eentral Afriea and in the islands of the Indian archipelago. Remains of settlements of this eharaeter have been discovered beneath the waters of the lakes of Switzerland, Italy, and other eountries of Europe, and in Asia, apparently diselosing a period of antiquity extending back to prehistorie times. Aeeordingly the term has eome to be employed particularly in regard to prehistoric remains of this class of habitation, and its use is almost always with this signifieanee. The first discovery of lake dwellings was made in 1829, at Ober-Meilen, on the lake of Zurich; and this, in spite of the fact that legends suggestive of the existenee of such remains had been prevalent in Switzerland, and in parts of Franee—notably at Voiron, department of Isère —for eenturies. The Zurieh diseovery eonsisted of remains of piles and eertain antiquities; but though euriosity was aroused coneerning the finding of these at the bottom of the lake, it was not until 1853–54 that any investigation was made. The oeeurrenee of a season when the waters of the lake fell unusually, facilitated examination, and it was found that two distinet beds existed. The first of these was from 1 to 2 ft. in thiekness, and eonsisted of yellowish mud, eontaining quantities of rounded pebbles. The second bed was from 2 to 2½ ft. thiek, consisting of sandy loam, colored blaek by deeayed organie matter. In this latter bed were found piles and a large variety of antiquities of different kinds. The piles were of oak, beech, birch, and fir, and were from 4 to 6 in. thiek. They showed evidenee of having been formed partly by the action of fire, whieh had been used in some instanees to sharpen the ends whieh were

imbedded. There were also marks of the clumsy tools of the period, whose slow and imperfect action had been hastened by means of the application of fire. Here were also found tools and implements of stone, bone, and horn; and bones of the stag, wild goat, wild boar, fox, cow, sheep, and dog. There were stone celts, or hatchets, made in the form of a wedge, and varying in length between 1 and 8 in., and in weight between ¼ oz. and 1 lb. Some of these were made from a kind of stone which does not now exist in the vicinity of the district where they were found. Some were of syenite, others of black sandstone, and some of jade; the latter not being found in Europe, but which has been employed by the Maoris of New Zealand in the construction of hatchets. In the Zurich specimens they were found set in a hafting of stags' horn, and in wood handles. There were also discovered examples of pottery; stones which had been formed for use as net-weights, etc. In 1865–66 investigations at Voiron, already alluded to, resulted in the discovery of the remains of lake dwellings, where were found also bones, implements, and pottery, some of the latter resembling that of the Roman period. These dwellings were erected on piles, tenoned and mortised, and with door-posts and window-frames. There were also iron weapons and utensils; awls, gimlets, cramps, chisels, and knife-blades; and even keys, fish-hooks, and horse-shoes; a leaden bracelet, blue jewelers' paste, and other extraordinary evidences of an advanced degree of civilization, and even luxury. In Italy, from the extreme north to the shores of the Adriatic, these lacustrine remains have been brought to light; while similar instances have been found in Scotland and in n. Wales. They have also been discovered on the borders of Asiatic Turkey and Russia, in the Grocktscha, or Lewanza-lake, between the Araxes, Kura, and Euphrates rivers. The Irish *crannoges*, artificial fortified islands, partake of the same characteristics, and are found in certain of the Irish lakes; they are attributed to the 9th and 10th centuries. Among the lacustrine remains found in different parts of Europe have been discovered relics of the stone, iron, and bronze ages. Yet, as it is certain that these so-called "ages" occurred at different periods in different parts of the world, we have not, in consequence of this fact, any reliable data as to the precise antiquity of such relics. Herodotus (450 B.C.) described the Pæonians as living on platforms in lake Prasias. The fact that dwellings of this character are found to the present day among certain savage races, and that implements, ornaments, and utensils have preserved general characteristics wherever found, or of whatever period, are circumstances which are to be taken into grave consideration in attributing a specific antiquity to the Swiss and Italian lacustrine remains. The instinct of self-preservation from wild beasts, and the unknown or imaginary terrors of a gloomy forest country, would be suggestive to any savage race at any period of the advantages of lake-dwellings.

LAKE FOREST UNIVERSITY, in Lake Forest, Lake co., Ill., a Presbyterian institution, founded in 1857. In 1879 it had 25 instructors and 225 students; D. S. Gregory, D.D., president.

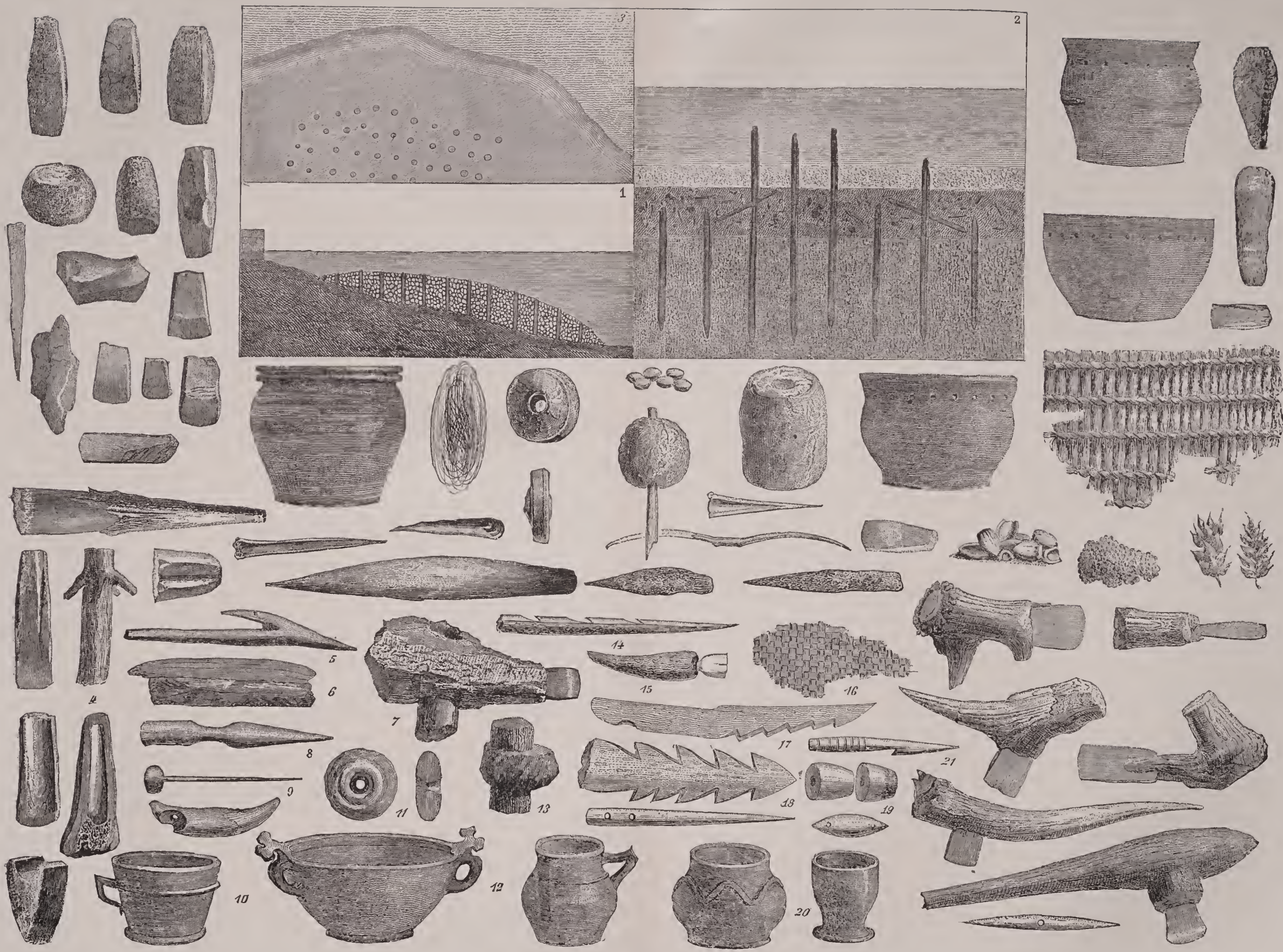
LAKE OF THE THOUSAND ISLANDS, an expansion of the St. Lawrence (q.v.), extends about 40 m. below the n.e. end of lake Ontario. It is well worthy of its name, being said to contain 1700 islets, the largest measuring 10 m. by 6. It separates Upper Canada from the state of New York.

LAKE OF THE WOODS, a body of water famous in the history of the international boundary between the United States and the Hudson's Bay company's territories, takes its name from the fact of its being studded with wooded islands, and lies 190 m. w.n.w. of lake Superior. At its s.e. end it receives the Rainy river from the Rainy lake; and at its n.w. extremity it sends forth the Winnipeg on its course to Hudson's bay. According to the treaty which closed the war of independence, it was divided by a central line between England and her old colonies. It measures about 300 m. round, and its remotest point is in lat. 49° n., and long. 95° west.

LAKES, in point of law, belong to the owner of the land which surrounds them; by which is meant not only the water and the use of it, but the soil under the water. Where the land surrounding the lake belongs to different owners, each has *primâ facie* the right to use the lake for ordinary purposes, including fishing or boating; but it depends on how the properties were acquired, whether and how far this general rule applies to any particular case.

LAKES, colors prepared by combining animal and vegetable coloring matters with alumina, which has a remarkable property of uniting with and separating these colors from their solutions. Thus, if we take the colored solution of cochineal, and add to it a solution of alum, the alumina in the alum immediately combines with the coloring matter, and the result is a precipitate which is carmine or Florentine lake.

Red lake is made in a similar manner from Brazil wood, a little solution of tin being added to heighten the color, and potash being used to accelerate the precipitation. Lakes of several shades of red and purple are also made from madder-roots, the quantity of potash used determining the proper color. Two or three yellow lakes are used, the manufacture of which is very similar; they are prepared from yellow berries or from arnotto. Almost every known animal or vegetable color may be converted into a *lake*, but those mentioned are the only ones found practically useful. They are chiefly employed by calico-printers and paper-stainers.



LAKE DWELLINGS (*see also* ARCHÆOLOGY).—1. Pile and stone foundation at Hauteville. 2. Arrangement of piles. 3. The same viewed from above. 4–21. Articles from Neufchâtel and other Swiss lakes, and from Wismar ; the rest from the lake of Constance, and Lake Timon at Vicenza.

LAKES (*ante*), certain pigments made by combining vegetable or cochineal dyes with metallic oxides, usually alumina or tin. Carmine lake is made by adding an alkali to a decoction of cochineal and alum, and the residues and mother liquors, which are produced in the preparation of carmine, are used for this purpose; but a carmine lake was made at Florence from Kermes mineral before cochineal was brought to Europe. Violet and purple lakes are made by adding a solution of alum to a decoction of logwood and precipitating in the cold by carbonate of potash. Yellow lakes are prepared in various ways. Dutch pink is made from Persian berries by making a decoction of them with potash or soda solution, and adding alum solution as long as a precipitate takes place. The addition of a solution of chloride of tin brightens the solution. Fustic lake is made by adding to a decoction of the wood glue or skimmed milk to remove the tannic acid. Alkali is added to remove acidity, and then the precipitation is accomplished by alum solution. Quercitron and wild lakes are made by similar processes. Orange lakes are made from arnotto or turmeric by similar processes. Blue lakes are prepared by adding sulphate of copper (blue vitriol) to a solution of logwood and precipitating in the cold with potash, or by precipitation with carbonate of potash from a solution of sulphindigotic acid and alum. Green lakes may be prepared by mixing blue or yellow lakes with blue or yellow pigments, or they may be made by a primary process. A decoction of coffee berries with sulphate of copper yields a good green lake by the addition of a moderate quantity of caustic potash. The addition of acetic acid heightens the color. Lakes are often adulterated by adding such substances as gypsum and white clay. A good eye will detect the adulteration at once from the loss of brilliancy, but a chemical test will detect the lime base in the gypsum or the silica in the clay.

LAKE SCHOOL, the name with which the *Edinburgh Review* dubbed certain poets (Wordsworth, Coleridge, and Southey) who, towards the close of last century, took up their residence in the lake district of Cumberland and Westmoreland, and who—though widely different from each other in almost every other respect—professed to seek the sources of poetical inspiration in the simplicity of nature, rather than in the works of their predecessors and the fashion of the times. The epithet, however, is not a happy one, and does not help us to a better knowledge of the men.

LAKE SURVEY. The shore line of the great lakes and rivers following the principal indentations is about 6,000 miles. The work to be done in surveys, soundings, etc., approaches in magnitude that of the Atlantic coast. The first appropriation to defray expenses was made in 1841 of $15,000. Previous to 1862 the largest annual appropriation had been $75,000, since which it has varied from $50,000 to $175,000. The first charts were published in 1852, but they were only of charts of localities, as a general survey had not then been made. After this the work became more extensive. It is very much like the work on the Atlantic coast, and is performed by primary triangulation in the first place, to be followed by secondary and tertiary, and by hydrographic surveys. Some of the work has been intricate, requiring many nice mathematical processes. In some places where primary triangulations would have been difficult of direct application, as along the American shore of lake Huron, many points have been determined by a combination of triangulation and astronomical work. On the lake Michigan shores many positions were obtained by carrying lines from known points. The work has been carried on with commendable energy, under such difficulties; the triangulation has been completed, and the hydrography of the harbors carried on to meet the demands of navigation. The work was finished in 1882.

The following are the officers who have been in command of the work: Capt. W. G. Williams, T.E., 1841–45; lieut.col. J. Kearney, T.E., 1845–51; capt. J. N. Macomb, T.E., 1851–56; lieut.col. J. Kearney, T.E., 1856–57; capt. G. Meade, T.E., 1857–61; col. J. D. Graham, T.E., 1861–64; col. and brevet brig.gen. W. F. Reynolds, engineers, 1864–70; major and brevet brig.gen. C. B. Comstock, 1870–82.

LAKE VIEW, Ill. See page 894.

LAKHNAOTI. See GAUR, city in Bengal.

LAKSHMÎ, in Hindu mythology, the name of the consort of the god Vishn'u (q.v.), and considered also to be his female or creative energy. According to the mystical doctrine of the worshipers of Vishn'u, this god produced the three goddesses, Brâhmî, Lakshmî, and Chan'dikâ, the first representing his creating, the second, his preserving, and the third, his destroying energy. This view, however, founded on the superiority of Vishn'u over the two other gods of the Hindu triad—Brâhmî, or Saraswatî, being generally looked upon as the energy of Brahmâ, and Chan'd'ikâ, another name of Durgâ, as the energy of S'iva—is later than the myth, relating to Lakshmî, of the epic period; for, according to the latter, Lakshmî is the goddess of fortune and of beauty, and arose from the ocean of milk, when it was churned by the gods to procure the beverage of immortality, and it was only after this wonderful occurrence that she became the wife of Vishn'u. When she emerged from the agitated milk-sea, one text of the Râmâyan'a relates, "she was reposing on a lotos-flower, endowed with transcendent beauty, in the first bloom of youth, her body covered with all kinds of ornaments, and marked with every auspicious sign. . . . Thus originated, and adored by the world, the goddess, who is also called *Padmâ* and *S'rî*, betook herself to the bosom of Hari—i.e., Vishn'u. A curious festival is celebrated in honor of this divinity on the fifth lunar day of the light half of the month Mâgha (Feb.), when she is identified with Saraswatî, the consort of Brahmâ, and the goddess of learning. In his treatise on festivals, a great modern

authority, Raghunandana, mentions, on the faith of a work called *Samwatsara-sandîpa*, that Lakshmî is to be worshiped in the forenoon of that day with flowers, perfumes, rice, and water; that due honor is to be paid to inkstand and writing-reed, and no writing to be done. Wilson, in his essay on the *Religious Festivals of the Hindus* (works, vol. ii. p. 188, ff.), adds that, on the morning of Feb. 2, "the whole of the pens and inkstands, and the books, if not too numerous and bulky, are collected, the pens or reeds cleaned, the inkstands scoured, and the books, wrapped up in new cloth, are arranged upon a platform, or a sheet, and strewn over with flowers and blades of young barley, and that no flowers except white are to be offered. After performing the necessary rites . . . . all the members of the family assemble and make their prostrations; the books, the pens, and ink having an entire holiday; and, should any emergency require a written communication on the day dedicated to the divinity of scholarship, it is done with chalk or charcoal upon a black or white board." In different parts of India, this festival is celebrated at different seasons, according to the double aspect under which Lakshmî is viewed by her worshipers. The festival in the month Mâgha seems originally to have been a vernal feast, marking the commencement of the season of spring.

LALANDE, Joseph Jérôme Lefrançais de, an eminent French astronomer, was b. at Bourg, July 11, 1732. He devoted himself with such success to mathematics and astronomy, that the French academy sent him to Berlin in 1751, to determine the moon's parallax, at the same time that Lacaille was sent to the cape of Good Hope. In 1752 he returned, and was appointed one of the astronomers-royal; and in 1761 succeeded Lemonnier in the professorship of astronomy in the collége de France. His lectures had a rare attractiveness, and he published several astronomical works of a popular kind, as well as works of profound science. He finally filled the office of director of the Paris observatory, and died April 4, 1804. His character was marked by extreme vanity; but no one has ever equaled him as a lecturer on astronomy, and few have contributed more to the general progress of astronomical science. His principal work is his *Traité d'Astronomie* (2 vols., Paris, 1764—a new and augmented edition in 4 vols., Paris, 1771–81). He also published minor works on astronomy, navigation, etc., and an account of his travels in Italy during 1765 and 1766 (9 vols., Paris, 1786).

LALANNE, Maxime. See page 894.

LALEMANT, Charles, 1587–1674, b. France; went to Canada in 1625 as superior of the missions; in 1634 established the first school in Quebec; was at the deathbed of Champlain, returned to France in 1638, and was rector of Jesuit colleges at Rouen, La Fleche, and Paris, and died in the latter city. His letters on the missions of Canada were reprinted in Albany in 1870.

LALEMANT, Gabriel, 1610–1649; b. France. He was a nephew of Jérôme Lalemant, entered the society of Jesus in 1630, and sailed for Canada in 1646. He was sent to the Huron mission, was taken prisoner by the Iroquois Indians. and with father Brebœnf was put to death, after the savages had tortured them for many hours.

LALEMANT, Jérôme, 1593–1673; b. France; a French priest who entered the Jesuit order in 1609, and after having been rector of various colleges in France, sailed for Canada in 1638, where he served as superior of all the Canadian missions from 1644–50. He made two trips to France, and became for a short period rector of the college of La Flèche, but returned to Canada in 1659, and died in Quebec in 1673. He wrote five of the *Jesuit Relations* of the Huron missions, and six of the general volumes for the years 1645–48 and 1661–64.

LALI'TA-PATAN', or Patan, a t. of Nepal, 4 m. s. from Khatmandu, from which it is separated by the Bogmutty. Lalita-Patan was formerly the capital of a small independent state. It is a neat town, and has some good public buildings. It has manufactures of cotton, copper, and brass. Pop. supposed about 24,000.

LALITA-VISTARA is the name of one of the most celebrated works of Buddhistic literature. It contains a narrative of the life and doctrine of the Buddha Sâ'kyamuni (see Buddha), and is considered by the Buddhists as one of their nine chief works, treating of Dharma, or religious law. It is one of the developed Sûtras of the Mahâyâna system. An edition of the Sanskrit text, and an English translation of this work by Bâbu Râjendralâl Mitra, is publishing under the auspices of the Asiatic society of Bengal. A French translation from the Thibetan has been made by Ph. Ed. Foucaux. In Chinese there are two translations of it. See E. Burnouf, *Introduction à l'Histoire du Buddhisme Indien* (1844); and W. Wassiljew, *Der Buddhismus, seine Dogmen, Geschichte und Literatur* (St. Petersburg, 1860).

LALLEMAND, Claude François, 1790–1854; b. Metz, France; professor of clinic medicine at Montpellier in 1819; removed for his political opinions in 1823; reinstated in 1826; in 1845 elected a member of the academy of sciences in Paris. Afterwards he accepted position as physician to Ibrahim Pasha and Méhémet Ali in Egypt. In 1857 he was a member of the international jury of the London world's exposition. His special study was of the brain and its environments and the connection between genital and cerebral diseases. His most important work was *Récherches anatomico-pathologiques sur l'Encéphales et ses Dépendances*, which has been translated into many languages. His other works are also of standard authority.

LALLY-TOLENDAL, Thomas Arthur, Count de, a French gen., of historic note as the victim of a judicial murder, was b. in Dauphiné in 1698. His father, sir Gerard Lally, was an Irish Jacobite refugee, and commander of an Irish regiment. Lally-Tolendal distinguished himself much as a soldier in Flanders; accompanied prince Charles Edward to Scotland in 1745; and in 1756 was made a lieut.gen. and appointed commander-in-chief in the French East Indian settlements. He commenced hostilities against the British in India, took many places, and besieged Madras itself; but sustained a severe defeat under the walls of Vandarachi, and was compelled to retreat to Pondicherry, which was attacked in Mar., 1760, by land and sea by a greatly superior British force. Lally, however, held out for ten months; and before Pondicherry fell, on Jan. 16, 1761, the sufferings of its defenders were terrible. Lally was conveyed as a prisoner of war to England; but hearing that he had been accused in France of betraying his trust in India, he obtained leave to proceed to France for the vindication of his character. An investigation was promised, but no step was taken for a year, and then Lally was only thrown into the Bastile, where he remained 19 months before his trial took place. The parliament of Paris at last, on May 6, 1766, condemned him to death for betraying the interests of the king and the Indian company, and the sentence was executed three days after. But his son, supported by the powerful assistance of Voltaire, procured a royal decree on May 21, 1778, declaring the condemnation unjust, and restoring all the forfeited honors.—The son, Trophimus Gerard, Marquis de Lally-Tolendal, was born in Paris, Mar. 5, 1751. He was one of those nobles who, in the states general, in 1789, united with the third estate; but alarmed at the democratic tendencies of the national assembly, he afterwards allied himself more with the court. He labored to procure for France a constitution with two chambers and a privileged aristocracy. He earnestly sought to protect the king, but was himself obliged to flee to England. After the revolution of 18th Brumaire he returned to France, and lived at Bordeaux. Louis XVIII. made him a peer; but he remained true to his political principles, and defended constitutional liberty. He died on Mar. 11, 1830. He was the author of a *Defense of the French Emigrants*, which made a great sensation in France at the time of its appearance, and of many other pamphlets.

LA'MAISM (from the Thibetan *bLama*,* spiritual teacher or lord) is the name of the religion prevailing in Thibet and Mongolia. It is Buddhism (q.v.) corrupted by Si'vaism (see Siva), and by Shamanism (q.v.), or spirit-worship. As ancient Buddhism knows of no worship of God, but merely of an adoration of saints, the latter is also the main feature of Lamaism. The essence of all that is sacred is comprised by this religion under the name of dKon mChhog gSsum (pronounced *konchogsum*), which consists of the "three most precious jewels"—viz.: "the Buddha-jewel," the "doctrine-jewel," and "the priesthood-jewel." A similar triad is implied by the three Buddhistic formulæ: "I take my refuge in Buddha; I take my refuge in the law (or doctrine); I take my refuge in the congregation (of the priests)," but it did not obtain the same dogmatic importance in Buddhism as in Lamaism, where it is looked upon as a kind of trinity, representing an essential unity. The first person of this trinity is the Buddha; but he is not the creator, or the origin of the universe; as in Buddhism, he is merely the founder of the doctrine, the highest saint, though endowed with all the qualities of supreme wisdom, power, virtue, and beauty, which raise him beyond the pale of ordinary existence. The second jewel, or the doctrine, is the law or religion—that which is, as it were, the incarnation of the Buddha, his actual existence after he had disappeared in the Nirvâna. The third jewel, or the priesthood, is the congregation of the saints, comprising the whole clergy, the incarnate as well as the non-incarnate representatives of the various Buddhistic saints. The latter comprise the five Dhyâni-Buddhas, or the Buddhas of contemplation, and, besides, all those myriads of Bodhisattwas, Pratyeka-Buddhas, and pious men, who became canonized after their death. It is obvious that among their number a portion only can enjoy practical worship; but the clergy, as the visible representative of these saints, claim and receive due homage at all the religious ceremonies. Inferior in rank to these saints are the gods and spirits, the former chiefly taken from the pantheon of the Si'vaits. The highest position amongst these is occupied by the four spirit-kings—viz., *Indra* (q.v.), the god of the firmament; *Yama*, the god of death and the infernal regions; *Yamântaka*, or Si'va, as revenger in his most formidable shape; and *Vais'ravana*, or the god of wealth. The worship of these saints and gods consists chiefly in the reciting of prayers and sacred texts, and the intonation of hymns, accompanied with a kind of music, which is a chaos of the most unharmonious and deafening sounds of horns, trumpets, and drums of various descriptions. During this worship, which takes place three times a day, the clergy, summoned by the tolling of a little bell, are seated in two or more rows, according to their rank; and on special holidays, the temples and altars are decorated with symbolical figures, while offerings of tea, flour, milk, butter, and others of a similar nature, are made by the worshipers; animal sacrifices or offerings entailing injury to life being forbidden, as in the Buddhistic faith. Lamaism knows especially three great festivals. The *Log gSsar*, or the festival of the new year, in Feb., marks the commencement of the season of spring, or the victory of light and warmth over darkness and cold. The Lamaists, like the Buddhists, celebrate it in

* The small letters prefixed to the initials of the Thibetan words in this article are not pronounced.

commemoration of the victory obtained by the Buddha Sâ'kyamuni over the six heretic teachers. It lasts fifteen days, and consists of a series of feasts, dances, illuminations, and other manifestations of joy; it is, in short, the Thibetan carnival. The second festival, probably the oldest festival of the Buddhistic church, is held in commemoration of the conception or incaruation of the Buddha, and marks the commencement of summer. The third is the *water-feast*, in Aug. and Sept., marking the commencement of autumn Baptism and confirmation are the two principal sacraments of Lamaism. The former is administered on the third or tenth day after birth; the latter, generally when the child can walk and speak. The marriage ceremony is to the Thibetans not a religious but a civil act; nevertheless, the Lamas know how to turn it to the best advantage, as it is from them that the bridegroom and bride have to learn the auspicious day when it should be performed; nor do they fail to complete the act with prayers and rites, which must be responded to with handsome presents. A similar observation applies to the funeral ceremonies of the Thibetans. Properly speaking, there are none requiring the assistance of the clergy, for Lamaism does not allow the interment of the dead. Persons distinguished by rank, learning, or piety are burned after their death; but the general mode of disposing of dead bodies in Thibet, as in Mongolia, is that of exposing them in the open air, to be devoured by birds and beasts of prey; yet it is the Lama who must be present at the moment of death, in order to superintend the proper separation of body and soul, to calm the departed spirit, and to enable him to be reborn in a happy existence. He must determine the auspicious day and hour when, and the auspicious place where, the corpse is to be exposed. The most lucrative part of his business, however, is the masses which he has to perform until the soul is released from Yama, the infernal judge, and ready to re-enter into its new existence; the doctrine of metempsychosis being the same in this religion as in Buddhism.

One of the most interesting features of lamaism is the organization of its hierarchy. Its summit is occupied by two lama popes, the one called *dalai-lama*, i.e., ocean-priest, or priest as wide as the ocean—he resides at Potala, near H'lassa—the other bearing the titles of *tesho-lama*, *bogdo-lama*, etc., and officially called *pan-chhen rin po chhe*, literally, "the right reverend great teacher-jewel" (i.e., precious teacher); he resides in the convent at bKra Shiss Lhun po, near gShiss Ka rTse. In theory, both popes have the same rank and authority, in spiritual as well as in temporal matters; but, as the dalai-lama possesses a much larger territory than the other, he is in reality much more powerful. Next in rank are the *khutuktus*, who may be compared to the Roman Catholic cardinals and archbishops. The third degree is that of the khubilghans or hobilghans —which Mongol name is more frequently given to them than the Thibetan title *bjang chhub*—a translation of the Sanskrit bodhisattwa. Their number is very great. These three degrees represent the clergy that claims to be the incarnation of the Buddhistic saints. The dalai-lama and the pan-chhen were in their former lives the two chief disciples of the great lamaist reformer bTsong kha pa, who was an incarnation of the Bodhisattwa Amitâbha, or, as some will have it, of Manjus'rí and Vajrapân'i, and who is reputed to have founded, in 1355 or 1357 of the Christian era, the present system of the Lama hierarchy. The khutuktus were, in their prior existences, other Buddhistic saints of very great renown; and the khubilghans are those reborn hosts of saintly patrons whom the temples and convents of lamaism possess in boundless numbers. Up to the end of last century, the clergy of these various classes determined the choice of the children into whose bodies the souls of their departed members had migrated. At present, however, it seems that the emperor of China exercises a paramount influence on the discovery of those transmigrations,—or, in other words, on the filling up of clerical posts—and there can be no doubt that his influence is supreme in the case of determining the election of the two highest functionaries of this theocracy. In order to ascertain the re-birth of a departed lama, various means are relied upon, Sometimes the deceased had, before his death, confidentially mentioned to his friends where and in which family he would reappear, or his will contained intimations to this effect. In most instances, however, the sacred books and the official astrologers are consulted on the subject; and if the dalai-lama dies, it is the duty of the pan-chhen to interpret the traditions and oracles; whereas, if the latter dies, the dalai-lama renders him the same service. The proclamation of so great an event, however, as the metempsychosis of a dalai-lama or pan-chhen is preceded by a close examination of the child that claims to be in possession of the soul of either of these personages. The reborn arch-saint, usually a boy four or five years old, is questioned as to his previous career; books, garments, and other articles, used and not used by the deceased are placed before him, to point out those which belonged to him in his former life. But however satisfactory his answers be, they do not yet suffice. Various little bells, required at the daily devotions of the lama, are put before the boy, to select that which he did use when he was the dalai-lama or pan-chhen. "But where is my own favorite bell?" the child exclaims, after having searched in vain; and this question is perfectly justified; for, to test the veracity of the reborn saint, this particular bell had been withheld from him. Now, however, there can be no doubt as to the dalai-lama or pan-chhen being bodily before them: the believers fall on their knees, and the lamas who successfully performed all these frauds join them in announcing the momentous fact.

Besides these three classes of the higher clergy—representing the incarnate existences

of departed saints, and chosen, therefore, without regard to merit, amongst the children of privileged families—lamaism possesses a lower clergy, which, having no claim to incarnate holiness, recruits its ranks on the principle of merit and theological proficiency. It has four orders: the pupil or novice, who enters the order generally in his seventh or ninth year; the assistant priest; the religious mendicant; and the teacher, or abbot. To these may be added two academical or theological degrees, and also two dignities, conferred by the sovereign lamas on those doctors who have distinguished themselves by extraordinary sanctity or learning. All the members of these orders must make the vow of celibacy, and by far the greatest number of them live in convents. A lamaist convent, *dGon pa*, consists of a temple, which forms its center, and of a number of buildings connected with the temple, and appropriated to the meeting-rooms, the library, refectory, dwellings, and other spiritual and worldly wants of the monks. At the head of the convent is a khubilghan, or an abbot, the latter being elected by the chapter, and appointed by the dalai-lama, or the provincial khubilghan. In addition to these orders of monks and convents, lamaism has likewise its nuns and nunneries.

The lamaist bible bears the name of *bKa' gjur* (pronounced *kanjur*)—i.e., "translation of the words," *scil.*, of the Buddha. It contains not less than 1083 works, which in some editions fill 102 to 108 volumes in folio. It consists of the following sections: 1, *'Dulba* (Sanskrit, Vinaya), or discipline; 2. *Sher phjin* (Sans. Prajnâpâramitâ), or philosophy and metaphysics; 3. *Phal chhen* (Sans. Buddhavata Sangha), or the doctrine of the Buddhas, their incarnations, etc.; 4. *dKon brTsegss* (Sans. Ratnakût'a), or the collection of precious things; 5. *mDo ssDe* (Sans. Sûtra), or the collection of Sûtras; 6. *Mjang 'dass* (Sans. Nirvâna), or the liberation from worldly pains; 7. *rGjud* (Sans. Tantras), or incantations, etc. Besides this mass of works, there is a very voluminous collection, the *bss Tan 'gjur*, or the translation of the doctrine, in 225 vols. in folio; but it does not seem to possess canonical authority.

The oldest history of lamaism is shrouded in darkness. For its growth and development under the Mongol and Manju dynasties, see the article THIBET.—The best work on lamaism is *Die Lamaische Hierarchie und Kirche, von Karl Friedrich Koeppen* (Berlin, 1859). See also Huc, *Souvenirs d'un Voyage dans la Tartarie, le Tibet et la Chine* (Paris, 1852); and Karl Ritter's *Erdkunde* (vol. iv.).

LAMA, or LAMAS, GRAND. See LAMAISM, *ante*.

LAMAN'TIN. See MANATEE.

LAMAR: co., Ala. See SANFORD.

LAMAR, a co. in n.e. Texas, has the Red river for its entire n. boundary, separating it from the Indian territory, and Sulphur Fork, a branch of the Red river, for its s. border. It is watered by many little rivulets from either stream; about 1050 sq.m.; pop. '80, 27,191—26,906 of American birth, and 4,410 colored. It is intersected centrally, from e. to w., by the transcontinental division of the Texas and Pacific railroad. It had in 1870, 144,208 acres of unimproved woodland. Forests of ash, hickory, oak, and walnut diversify the generally level surface of the prairie, and the Osage orange, used largely for hedge-fencing, is a natural product. It has fine pasture land, and the soil is adapted to fruit-growing, grain, and the raising of cattle. Its products are winter wheat, Indian corn, oats, and sorghum, honey, wax, and sweet potatoes. Cotton and tobacco and wool are extensively cultivated. Number of farms in '80, 3,053; value of all live stock in '70, $473,301; value of manufactures, 1880, $226,266; bales of cotton produced, 21,154; bushels of corn, 817,854. Value of real and personal estate, '80, $4,885,620. Seat of justice, Paris.

LAMAR', LUCIUS QUINTUS CINCINNATUS, 1797–1834, educated at the Litchfield, Conn., law school, and on being admitted to the bar, settled in Milledgeville, Ga., 1819, where he soon achieved a high reputation. Made judge of the circuit court in 1830, his decisions became recognized authority. He compiled the statutes of the state of Georgia by appointment of the legislature. Judge Lamar committed suicide July 4, 1834, for no known cause, as he was peculiarly happy in all his relations, his ability acknowledged, and his position secured.

*LAMAR, LUCIUS QUINTUS CINCINNATUS, b. Ga., 1826; received his education at a local institution; prosecuted the study of law, and afterwards practiced in Mississippi, from which state he was elected to congress in 1856. He was re-elected, but retired after the secession of his state in 1861. During the war of the rebellion he held a colonel's commission in the confederate army, but filled a responsible mission abroad, and was not in active military service. He was elected to congress in 1872, re-elected in 1874, and in 1877 took his seat as U.S. senator from Mississippi, his term to expire Mar. 3, 1883. Mr. Lamar at one time held the position of assistant editor of the *Southern Review*, and was adjunct professor of mathematics in the university of Mississippi. He was professor of political economy and social science in the same institution in 1866, and professor of law in 1867. See *Supp.*, page 894.

LAMARCK, JEAN BAPTISTE PIERRE ANTOINE DE MONET, Chevalier de, a most distinguished French naturalist, was b. of a noble family at Barentin, in Picardy, Aug. 1, 1744. He was intended for the church, but preferred the army. An accidental injury, which placed his life in danger, put a stop to this career, and he became a banker's clerk. His first scientific pursuit was that of meteorology, from which he turned to

botany, and attempted to introduce a new system of classification, which he called the analytical system, but which met with little acceptance. In 1778 he published his *Flore Française* (3 vols.), which was afterwards made the basis of the work of Decandolle. Shortly after, he was appointed botanist to the king, and tutor to the son of Buffon, with whom he visited foreign countries, and inspected their botanical collections. He also contributed many botanical articles to scientific works. After a considerable portion of his life had been spent in the earnest study of botany, Lamarck devoted himself chiefly to zoology, and in 1793, was made professor of the natural history of the lower classes of animals in the *Jardin des Plantes*. He rendered very important services to this branch of science. His greatest work is his *Histoire des Animaux sans Vertèbres* (7 vols. Paris, 1815–22; 2d ed., by Deshayes and Milne-Edwards, Paris, 1835, etc.). In his *Philosophie Zoologique* (2 vols. Paris, 1809), and some other works, he indulged in extremely speculative views, some of which, however, are attracting great attention in the scientific world at the present day. Lamarck was the first (if we except a few obscure words of Buffon towards the close of his life) to set forth the theory of the "variation of species," which has been recently revived by Darwin. Lamarck died Dec. 20, 1829, after having been for 17 years blind, in consequence of small-pox.

LA MAR'MORA, Albert, Count, 1789–1863; b. Turin, Italy; educated for the army at Fontainebleu, and served with distinction, being decorated by Napoleon I., after the battle of Bautzen. He fought on the side of the Sardinians in 1814, and during the military insurrection in 1821. On account of his latter course he was exiled to Sardinia, and remained there during nearly ten years, which he occupied in profound study and investigation of the natural characteristics of the island. The result of his labor appeared in an elaborate report, which is highly esteemed. In 1831, being recalled from his exile by the government, he was restored to favor and became a member of the *Accademia delle Scienze* of Turin. He was, nevertheless, as revolutionary as ever in spirit, and on the outbreak of the great movement of 1848, he joined Daniel Manin and became prominent during the unsuccessful revolt of Venice. Later he assumed the character of peacemaker, and by his wise counsels succeeded in allaying much of the irritation which existed among the leaders of the contending parties. His great work, written in French, and comprising an atlas and description, is entitled, *Voyage en Sardaigne, on Déscription Statistique, Physique, et Politique de cette Isle.*

LA MARMORA, Alfonso Ferrero, Marquis de, an Italian general and statesman, b. Nov. 17, 1804. In 1816 he entered the military academy, where he received the grade of lieutenant in the artillery, previous to leaving in 1823. He was speedily promoted to be adjt.maj., and directed his special attention to the improvement of regimental gymnastics, riding, and shooting, and to the organization of normal schools for the benefit of the private soldiers. In 1831, having obtained his captaincy, he set out on a tour of inspection of the great military establishments both of Europe and the east. In 1845, he became maj., and for his distinguished conduct in the national war of 1848, was decorated with the medal of valor. The services he then rendered the Sardinian army removed from the mind of Charles Albert a prejudice which his warm advocacy of military reform had aroused in the king, In 1849 he entered the cabinet as minister of war, and notwithstanding his sincere zeal for useful reforms, a general spirit of censure was evoked by his vigorous efforts to displace from the Sardinian ranks the Italian refugees who had entered the regular army. In 1855 he withdrew from the ministry, to assume the command of the Sardinian troops in the Crimea, and at the close of the war was invested with the order of the bath, and the grand cross of the legion of honor, and re-entered the ministry in his former capacity. He took an active part in the war of 1859, by which Lombardy was acquired by Italy; in 1861 was appointed commander-in-chief of the Italian army, and in 1864 prime minister. In the campaign against Austria in 1866, he lost the battle of Custozza. Latterly he was intrusted with several diplomatic missions; and his account of the secret negotiations between Prussia and Italy incurred the censure of prince Bismarck. La Marmora died in Jan., 1878.

LAMARQUE, Maximilien, Comte, 1770–1832; b. France; joined the army as a private soldier in 1791, and soon rose to be capt. of grenadiers in the famous corps commanded by Latour d'Auvergne, first grenadier of France. He was made a brig.gen. in 1801, and distinguished himself in the battles of Austerlitz and Wagram, and in the campaigns of the Tyrol and Naples (under Joachim Murat), and in Italy. Having taken the island and fortress of Capri from the English, he was made a gen. of division; and on Bonaparte's return from the island of Elba, he gave Lamarque the command of the city of Paris, and afterwards made him commander-in-chief of the army of La Vendée. In 1815, he was proscribed by the restored Bourbons, and retired to Amsterdam, where he remained until 1818, when he returned to Paris, and contributed articles on foreign politics to the opposition journals. In 1828 he was elected to the chamber of deputies, where he became an important member of the opposition or progressive party. The republican disaffection, which had for some time been apparent in France, broke out into open insurrection on the occasion of the funeral of gen. Lamarque, who died June 1, 1832. Funeral orations were delivered on the place de la Bastile; and, at the conclusion of the address of gen. Lafayette, a red flag was unfurled, and the dragoons who

were posted about, in anticipation of trouble, were fired upon. The national guards who were in the procession quitted it in disorder; and the insurgents raised the cry "to arms," and began to build barricades, break lamps, and otherwise conduct themselves after the disorderly fashion of a Paris *emeute*. Night (June 5) brought a temporary cessation of the disturbances; and meanwhile the king (Louis Philippe) arrived from St. Cloud, and visited the different military posts. On the morning of the 6th the insurgents were in possession of certain quarters, but were soon surrounded by the troops, and forced to remain behind their barricades. The king issued from the Tuileries at the head of a brilliant staff, giving fresh confidence to the soldiers, and the barricades were carried; the troops losing 55 killed and 240 wounded; the national guards 18 killed and 104 wounded; and the insurgents 93 killed and 291 wounded. Paris was placed, by royal ordinance, in a state of siege; Garnier Pages and other deputies, and Armand Carrel, editor of the *National*, were arrested, and the polytechnic school and the school of Alfort were closed, on account of some of their students having taken part in the disturbance.

LAMARTINE, Alphonse; was b. at Mâcon, Oct. 21, 1792. In his *Memoirs of my Youth*, he has given us a touching account of the hardships to which his family was subjected during the reign of terror. He was educated principally at the college of the Pères de la Foi, at Belly. On leaving college, he spent some time in traveling in Italy. After the fall of Napoleon, he entered the army, which, however, he soon quitted, revisiting Italy in 1818. In 1820 appeared his *Méditations Poétiques*. The success of this work helped to open up for him a diplomatic career. He was appointed *attaché* to the French embassy at Naples, and on his way thither married, at Chambery, a beautiful and accomplished English lady, Miss Birch, whom he had met the year before in the valleys of Savoy. In 1823 appeared his *Nouvelles Meditations*, and in 1824 he became secretary of the legation at Florence. An unlucky expression which Lamartine had used, descriptive of the Italians, in his *Dernier Chant de Childe Harold* (1825), led to a duel between him and col. Pepé. Though Lamartine was wounded, the result, luckily, was not serious. In 1829 appeared the collection of *Harmonies Poétiques et Religieuses*. In the same year he was elected a member of the French academy. After the revolution of 1830, having failed to procure a seat in the chamber of deputies, he set out in 1832 to travel in the east. The death of his only daughter threw a gloom over this period of his life. Receiving news, when at Jerusalem, of his election by the constituency of Bergues, he returned to Paris. Though he soon became a noted speaker in the chamber, he still vigorously pursued his literary studies. In 1835 he published an account of his eastern travels. The *History of the Girondins*, which originally came out in journals, was, in 1847, published complete in 8 vols. It had unquestionably much influence in bringing about the great events of the following year. When the revolution took place in Feb., 1848, Lamartine became a member of the provisional government and minister of foreign affairs, and exercised a great influence over the first movements of the new republic. Ten departments elected him as their representative in the constituent assembly; he was also chosen one of the five members of the executive commission, and enjoyed for some months an immense popularity; whilst his spirited and patriotic conduct, in crushing the mere anarchic insurrections of April 16 and May 15, must be regarded as having prevented great evils. Yet this was one of the principal causes of his downfall; the crowd became enraged, the assembly hostile, and the supreme power passed for a brief period into the hands of Cavaignac (q.v.). Though Lamartine was nominated for the presidency, but few votes were recorded in his favor; and the *coup d'état* of Dec. 2, 1851, sent him back to private life. From that time he gave himself almost wholly to literary pursuits. His *History of the Revolution of* 1848 had appeared in 1849. It was followed, in 1851–52, by his *History of the Restoration of Monarchy in France;* and in 1854, by the *History of Turkey*. He also contributed largely to several journals. In 1860 he undertook the publication of a complete edition of his works, revised and corrected by himself. He finished this labor in 1866. The edition consists of 41 vols. In 1867 a pension was granted him by the government. He died March 1, 1869.

LA'MAS, Andres, b. Montevideo, 1817; a distinguished Uruguayan statesman, held also in high esteem for his learning, and particularly for his acquirements in the department of South American history. He held the office of prefect of Montevideo during the siege which began in 1839 and lasted nine years; he was also minister of finance, and was frequently sent on important diplomatic missions to other governments. He founded an institute of history in his native city, and made a large and valuable collection of manuscripts illustrative of South American history, many of which he has published.

LAMASOOL, or Lamb's-wool, an old English beverage, composed of ale and the pulp of roasted apples, with sugar and spices. The name is from the ancient British *La maes abhal*, the day of apples, because this beverage was drunk at a feast on the apple-gathering in autumn.

LAMB : co., Tex. See page 894.

LAMB, Lady Caroline. See Melbourne, William Lamb, *ante*.

LAMB, CHARLES, an English poet and essayest, was b. in the temple, on Feb. 18, 1775, and received his education at Christ's hospital, where he had Coleridge for a school-fellow. With Coleridge, Wordsworth, Hunt, Hazlitt, and other distinguished men of his time, he lived in affectionate intimacy. In 1792 he became a clerk in one of the departments of the India house; and in 1825 he was allowed to retire with a pension granted by the directors. His first poems appeared in a small volume, in which venture Coleridge and Lloyd were his partners. In 1801 he published *John Woodvil*, a drama, in which he looks upon man and nature with the eye of an Elizabethan. His *Essays of Elia* were originally published in the *London Magazine*. Lamb was never married; he lived with an only sister, who was subject to insane fits—in one of which she killed her mother—and for whom he cherished the tenderest affection. He died in London, on December 27, 1834. After his death, Mr. Justice Talfourd published two volumes of his *Letters;* and these, in 1848, he supplemented by the *Final Memorials*, in which, for the first time, the world became acquainted with the story of his sister.

The poems of Lamb were never widely read, nor are they yet; his reputation rests entirely upon his criticisms and his *Essays*. The critical remarks appended to his *Specimens of English Dramatic Poems* are of the highest value, while his *Essay on the Genius of Hogarth* is considered by many the finest critical paper in the language. In the qualities of grace, quaintness, and a certain tenderness of humor, "a smile on the lip, and a tear in the eye," the *Essays of Elia* are unique; the author is reflected in them with all his whims, his wit, his poetic instinct, his charity, and his odd ways.

LAMB, CHARLES (*ante*). His first volume of poems was severely attacked in the *Anti-Jacobin*. This was in 1797; and in the following year he published *Rosamund Gray and Old Blind Margaret*, which was favorably reviewed in the *Monthly Review;* and followed this, in 1801, with *John Woodvil*, a tragedy, which was offered to John Kemble, and by him rejected. This work came under the castigation of the *Edinburgh Review*. A farce by Lamb called *Mr. H——* was a failure at Drury Lane theater, though Elliston played the leading part; while at Philadelphia, with Mr. John Wood in the same character, it had a successful run. *Specimens of English Dramatic Poets who lived about the time of Shakespeare*, published in 1808, was favorably reviewed by Disraeli, Singer, and Talfourd; yet Allibone terms it "a collection disfigured by indecencies." The *Essays of Elia* were published in a collected edition in 1823. Lamb retired from the India office with a pension of £450, yet, excepting the *Last Essays of Elia* (1833), he wrote nothing of importance during the 9 years of absolute leisure which preceded his death. Mary Lamb was a woman of refined and cultivated taste, and considerable felicity of expression in writing. She composed, in company with her brother, *Mrs. Leicester's School* and *Tales from the Plays of Shakespeare*.

LAMB, JOHN, 1735–1800; b. New York. He was engaged with his father in the business of an optician and maker of mathematical instruments at the beginning of the revolutionary war, but at 40 years of age enlisted in the army and took a prominent part in Montgomery's unsuccessful expedition against Quebec, in which he was wounded and taken prisoner. He afterwards served under gen. Knox as maj. and col. of artillery, doing good service to the end of the war. He was afterwards a member of the New York legislature, and later still collector of the port of New York, a post which he held until his death.

LAMB, MARTHA JOAN READE. See page 894.

LAMB, MARY ANNE. See LAMB, CHARLES.

LAMB, WILLIAM, Lord MELBOURNE. See MELBOURNE, *ante*.

LAMBALLE, MARIA THERESA LOUISA OF SAVOY-CARIGNAN, Princess of, a victim of the French revolution, was b. at Turin, Sept. 8, 1749, and was the daughter of prince Louis Victor Amadeus of Carignan. She was very beautiful and amiable, and was married in 1767 to Louis Alexander Joseph Stanislaus de Bourbon, prince of Lamballe, who soon after died a victim of debauchery. The princess became the intimate friend and chosen companion of Marie Antoinette. At the time of the attempted flight of the king and queen she sought refuge in England, but returned to them in Feb., 1792. After the events of Aug. 10 she received permission to share the captivity of the queen, but was soon separately immured in the prison of La Force, and on Sept. 3 was brought before the tribunal, and commanded to swear that she loved liberty and equality, and hated the king, the queen, and royalty. "The first oath," she replied, "I will swear, but the rest I cannot; my heart rebels against it." Many of those who stood by were anxious that she should escape, but she did not hear the advices which they addressed to her. "Let madame go!" said the president; and at this signal of death two men conducted her to the door, where she received a stroke of a saber on the back of her head, when blood spouted up and her long hair fell down. On receiving a second stroke she fell, and the murderers tore her body to pieces, placed her head and heart upon pikes, and brutally paraded them before the windows of the temple, where the royal family were confined.

LAMBAYÉQUE, a t. of Peru, in the dep. of Libertad, near the mouth of the river Lambayeque, 425 m. n.w. from Lima. It is about 5 m. from the sea; but has some trade, although its roadstead is very bad, and fully a mile from the shore. Lambayequé has a church and several chapels. It has manufactures of cotton fabrics. Pop. 8,000.

LAMBEAUX, a cross, in heraldry, is a cross formed in the upper like a cross pattée, but with the lower limb not widened, but terminating in a label of three points, "having," according to Sylvanus Morgan, "a great deal of mystery in relation to the top, whereon the first-born Son of God did suffer, sending out three streams from his hands, feet, and sides."

LAM'BERT, DANIEL, 1769–1809; an Englishman noted for his gigantic size. Until he reached his 19th year he was not remarkable for weight or dimensions, but from that period continued to grow, until, at his death, he measured 5 ft. 11 in. in height, 9 ft. 4 in. girth, 3 ft. 1 in. round the leg, and weighed 739 lbs. Lambert was keeper of the Leicester prison, succeeding his father in this position while a young man; and to the confinement and sedentary nature of his occupation he attributed his abnormal growth, which, however, was undoubtedly due rather to a strong natural predisposition to obesity.

LAMBERT, FRANCIS, or LAMBERT of Avignon; so called from the name of his native place; 1487–1530; was one of the early apostles of the reformation. He became a gray friar when only 16 years of age, was ordained a priest, and preached with success. In 1522, having been refused permission to join the Carthusians, he attached himself to the cause of Martin Luther, and embraced the doctrines of the reformers. He now threw aside the garb of his order, assumed the name of John Serranus and began to preach the reformed faith in Germany and Switzerland. He joined Luther in 1523 at Wittenberg, and thence, having written his commentaries on Hosea and other works, proceeded to Metz and Strasburg. A Protestant academy having been established at Marburg, he became its first professor of theology; and in 1529 took part in a general conference held at that place of theologians from the different German provinces. His contemporaries unite in describing Lambert as a learned, industrious, and upright man.

LAMBERT, JOHANN HEINRICH, a philosopher and mathematician, was b. Aug. 29, 1728, at Mühlhausen in upper Alsace. He was the son of a poor tailor; but his talents and application to study having gained him friends, he obtained a good education, and made remarkable progress in mathematics, philosophy, and oriental languages. He obtained a situation as clerk in an office, and gradually rose, till Frederick the great, in 1764, summoned him to Berlin and made him a member both of the council of architecture and of the academy of sciences. He died at Berlin, Sept. 25, 1777, leaving behind him the renown of having been the greatest analyst in mathematics, logic, and metaphysics that the 18th c. had produced. He was the first to lay a scientific basis for the measurement of the intensity of light, in his *Photometria* (Augsb. 1760), and he discovered the theory of the speaking-tube. In philosophy, and particularly in analytical logic, he sought to establish an accurate system by bringing mathematics to bear upon these subjects in his *Neues Organon, oder Gedanken über die Erforschung und Beziehung des Wahren* (2 vols., Leip. 1764). Of his other works we may mention his profound *Kosmologische Briefe über die Einrichtung des Weltbaus* (Augsb. 1761), and his correspondence with Kant.

LAMBERT, JOHN, an English parliamentary gen., was b. at Kirkby-Malhamdale, in Yorkshire, Sept. 7, 1619, and on the outbreak of the civil war became a capt. under Fairfax. He fought at Marston Moor, at Naseby, in Scotland, and at Worcester, but did not acquire importance till after the death of the great protector, when he became the head of the cabal of malcontent officers who overthrew the feeble administration of Richard Cromwell. Lambert was now looked upon as the leader of the fifth monarchy or extreme republican party; suppressed, with considerable vigor, the royalist insurrection in Cheshire, Aug., 1659; and two months afterwards, dismissing the remnant of the Rump parliament, virtually governed the country along with his officers under the title of the "committee of safety." For a brief period his position was considered so important that Charles II. was advised to make terms with him by marrying his daughter. The counterplot of Monk, however, frustrated all his designs; and on April 22 he was taken prisoner by col. Ingoldsby, tried in 1662 and banished to the isle of Guernsey, where he died in 1692.

LAMBERTVILLE, N. J. See page 894.

LAMBES'SA, or LAMBÈSE, a French penal colony in Algiers, in the province of Constantine, the ancient Numidia. The city of Lambæsa, on whose site the present town is built, was a place of importance, having about 50,000 inhabitants, being a Roman military station. Ruins remain, comprising extensive walls and fragments of imposing structures, with statues and busts of distinguished personages and Roman deities. The present Lambessa contains a secure prison, built at an expense of about $350,000. The settlement is under the immediate control of a French commander, and is guarded by a sufficient number of officers and soldiers.

LAM'BETH, a parliamentary borough of England, in the county of Surrey, forms a great part of the s.w. quarter of London. It is said to cover an area of 8,840 acres, and had, in 1881, a pop. of 498,967. Besides Lambeth palace, which has been the official residence of the archbishops of Canterbury for several centuries, it contains Astley's theater, the site of the once famous Vauxhall gardens, and the Surrey zoological gardens. It returns two members to the house of commons.

LAMBETH ARTICLES. The Calvinistic doctrine of predestination and free-will, having been brought by the refugees from the continent to England, was favored by prof. Cartwright of Cambridge, but opposed by Barrett, a fellow of Caius college. Archbishop Whitgift directed him not to preach such doctrine again. Dr. Whittaker, the regius professor, supported the doctrines, and he and his party drew up nine articles which they submitted to the archbishop, who, Nov. 10, 1595, called at Lambeth an assembly to consider the question, consisting of Fletcher, the elect of London; Vaughan, elect of Bangor; Trindall, dean of Ely; Whittaker, and the Cambridge divines. They drew up the following nine articles, known as the "Lambeth Articles": "1. God from eternity predestinated certain persons unto life, and reprobated certain persons unto death. 2. The moving cause of predestination to life is not the foresight of faith, or of perseverance, or of good works, or of anything that is in the persons predestinated, but the alone will of God's good pleasure. 3. The predestined are a predetermined and certain number, which can neither be lessened nor increased. 4. Such as are not predestinated to salvation shall inevitably be condemned on account of their sins. 5. The true, lively, and justifying faith, and the Spirit of God justifying, is not extinguished, doth not utterly fail, doth not vanish away in the elect, either finally or totally. 6. A true believer—that is, one who is endued with justifying faith—is certified by the full assurance of faith that his sins are forgiven, and that he shall be everlastingly saved by Christ. 7. Saving grace is not allowed, is not imparted, is not granted to all men, by which they may be saved if they will. 8. No man is able to come to Christ unless it be given him, and unless the Father draw him; and all men are not drawn by the Father, that they may come to his Son. 9. It is not in the will or power of every man to be saved." The archbishop approved the articles Nov. 20, 1595, and sent them to Cambridge, but the queen ordered them to be recalled, and severely censured the archbishop.

LAMBREQUIN, a word used in heraldry in three senses: 1. The mantling attached to the helmet, and represented as depending over the shield (see MANTLING); 2. A wreath (q.v.); 3. The point of a label. See LABEL.

LAMB'S LETTUCE. See CORN SALAD.

LAMBTON, a co. in s.w. Ontario, Canada, bounded on the n. and the n.w. by lake Huron, and on the w. by the river St. Clair, which is navigable by large steamboats; 725 sq.m.; pop. '81, 42,616. It is intersected horizontally by three railroads—the Grand Trunk railroad, the Port Sarnia branch of the Great Western railway, and the St. Clair branch of the Canada Southern railway. It is drained by the Little Bear and Black creek in the s., and a few small streams in the n. and n.e. It has a fertile soil, and along the shore of the lake are beaches of sand and Silurian limestone, near which are tangled forests of cedar and fir in the almost impenetrable swamps; while in the interior the soil is more sandy and the trees are scattered and scrubby. It has saw, grist, and shingle mills, and manufactories of wooden and iron ware. It has springs of petroleum oil in the southern portion, at Oil Springs, where 35 oil wells have been opened and several are still operated, and at Petrolia 100 wells, producing from 8,000 to 10,000 barrels weekly. Seat of justice, Sarnia.

LAME'GO, an old t. of Portugal, in the province of Beira, is situated amid rocky mountains on an affluent of the Douro, about 3 m. from that river, and 46 m. e. of Oporto. It contains a Gothic cathedral and a bishop's palace; and there are ancient remains, both Roman and Moorish. Pop. 9,000.

LAMEL'LIBRANCHIA'TA, a class of acephalous mollusks, all of which have bivalve shells (see BIVALVES), and which respire by gills in the form of vascular plates of membrane attached to the inner surface of the mantle. Oysters, cockles, and mussels are familiar examples. The *adductor* muscle, which closes the shell, is single in some, double in the greater number. More important differences exist in the powers of locomotion possessed by some, and denied to others. Thus, oysters are fixed to one spot by one of the valves of the shell; but most of the lamellibranchiata have the power of moving by swimming, leaping, or burrowing in sand, sometimes in more than one of these ways, being provided for this purpose with a fleshy muscular organ called the *foot*. Some, as mussels, when they have found a suitable place, fix themselves there by a *byssus* (q.v.). The mouth of the lamellibranchiata is jawless and toothless, and all seem to depend for their food on the currents of water continually brought by ciliary action into the mouth. They all seem more or less sensible to light, and numerous small red spots on the edge of the mantle of some are supposed to be eyes. They have organs of hearing, and labial tentacles, which are supposed to exercise the sense of smell.

LAMELLICOR'NES, a very numerous family of coleopterous insects, of the section *pentamera*, containing the largest of the beetles, as well as many species remarkable for peculiar conformations of the head and thorax. The three last joints of the antennæ are flattened into lamellæ, which are sometimes disposed like the leaves of a fan, sometimes like teeth of a comb. Many of the lamellicornes feed on decaying animal or vegetable matter, but some on leaves or flowers; the latter are generally of brilliant metallic colors; the former, black or brown. The larvæ are soft, cylindrical, with six small legs, and the body always curved. Dung-beetles, stag-beetles, cock-chafers, etc., belong to this family.

LAMELLIROSTRES, in the system of Cuvier, a large group of web-footed birds (*palmipedes*), distinguished by a thick bill having tooth-like *lamellæ* at its edges, apparently more for the purpose of straining water from the food than of masticating or comminuting it. The *anatidæ* and *mergidæ* (ducks, swans, geese, goosanders, and mergansers), constitute the group of lamellirostres.

LAMENNAIS, Hughes Félicité Robert de, a celebrated politico-religious writer of France during the present century, was born of a family engaged in the shipping-trade at St. Malo, June 6, 1782. With the exception of some instruction in Latin, which he received from his elder brother, Lamennais was, owing to the revolutionary troubles, almost entirely self-taught. His early turn of thought was strongly religious, as well as decidedly literary; and resisting all his father's efforts to fix him in commercial life, he pursued a literary career, and in 1807 received an appointment as teacher of mathematics in the college of his native town. His first work, published in the next year, *On the State of the Church in France during the 18th Century*, is written in a strain of high orthodoxy, and directed against the materialistic philosophy of the 18th c., its influence still subsisting in the literature of his own time. A few years later—having meanwhile taken the clerical tonsure—he produced, in conjunction with his brother, a treatise *On the Tradition of the Church on the Institution of Bishops*, which arose out of the conflict of Napoleon with the Holy See as to the affairs of the church in France. During the Hundred Days he was obliged to flee to England, where he was received by the celebrated abbé Caron; and on his return to France he entered the seminary of St. Sulpice, where he received priest's orders in 1816. A year afterwards he published his most celebrated work on the side of orthodoxy, *An Essay on Indifference in Religion*, which is a work of exceeding acuteness, and of great learning and brilliancy. In this work, however, he pushes the claim of authority to such a length, and makes all reasoning resolve itself so completely into authority, that even those who agreed in the conclusion at which he arrived, were not surprised at the recoil by which, this principle of authority once abandoned in his after conflict with the church, his mind rushed into the opposite extreme of utter and unlimited unbelief. The celebrity which this work won for him led to a design on the part of the pope, Leo XII., to promote Lamennais to the cardinalate. This design, however, was afterwards abandoned. Lamennais's political views, from the first moment of the restoration, had been liberal. Nevertheless, he joined himself to a powerful and active section of the most distinguished members of the royalist and church party—Chateaubriand, De Bonald, Frayssinous, and others, the organ of which was a journal named the *Conservateur*, and afterwards the *Defenseur*, and the *Drapeau Blanc;* but he rapidly outstripped the views of most of his colleagues. He was fined, in 1824, for a work *On the Relations of Religion and Politics*. After the revolution of 1830, while he adopted in its fullest sense the doctrine of the sovereignty of the people, he continued a zealous adherent of the faith of the church; and, in conjunction with a number of ardent young friends, all of whom subsequently rose to distinction in their various lines—Montalembert, Lacordaire, Gerbet, and others—he established a journal called *L'Avenir*, the aim of which was to reconcile liberty and religion. The doctrines of this journal on the separation of church and state and on many other popular topics, gave great offense to the ecclesiastical authorities. They were censured by the pope, Gregory XVI., in 1832; and Lamennais, in obedience to the papal sentence, discontinued his journal, and professed his future submission to authority; but from this date his opinions underwent a rapid change, and in a work which he published in the year 1834, and which obtained an immediate and unprecedented popularity in France, *Paroles d'un Croyant*, proclaimed his complete and irreconcilable rupture with the church of which he had long been the champion. The work was immediately condemned at Rome; but it passed in France through innumerable editions, and was translated into all the languages of Europe; and the author's reply to the papal condemnation was in a still more pointedly aggressive work, in 1836, entitled *Affaires de Rome*. With his characteristic impetuosity, he now threw himself into the arms of the opposite party. His successive publications, *The Book of the People* (1837); *The Country and the Government* (1840); *On Religion* (1841); *The Guide of the First Age* (1844); *A Voice from Prison* (1846); were but so many new utterances of the most extreme democratic principles. The revolution in his religious sentiments was equally decisive and complete; he not merely ceased to be a Romanist, but even a believer. In his last illness, he declined all religious ministrations; and at his death, which occurred Feb. 27, 1854, he gave directions that his interment should not be marked by any religious ceremony. He also directed, by his will, that certain papers which he left ready for press should be published without alteration; and on the refusal of his niece to surrender these papers, a suit-at-law was instituted, which terminated in an order for the surrender of the papers; and his *Posthumous Works* were published accordingly in 1855–59. The most elaborate work of Lamennais' latter period is his *Esquisse d'une Philosophie* (4 vols., 1840–46).

LAMENTATIONS OF JEREMIAH (*Megillath Echa;* lxx. *Thrēnoi*), the name given to one of the canonical books of the Old Testament, containing laments over the desolation of the land, the exile of the people, the destruction of the first temple, the fall of the kingdom of Judah, and the writer's own woes. These laments are five in number, and are closely connected in regard to their subject-matter; but considerable diversity of opin-

ion exists concerning their artistic relation to each other. Some, as De Wette, Ewald, and Keil, have tried to show that they are really parts of one poem; others, as Eichhorn and Bertholdt, that they were originally quite independent and isolated elegies; while a third party, as Lowth and Davidson, hold that there is a certain pervading harmony of sentiment and idea, indicating, probably, that they were composed by the poet-prophet under the same condition of religious feeling. The structure of the laments is very artificial. Most critics are satisfied, from internal evidence, that the tradition which makes Jeremiah their author is worthy of credence, and that they were all written by him shortly after the destruction of Jerusalem.

LAMENTATIONS OF JEREMIAH (*ante*) have been universally acknowledged by the Jews as the work of their weeping prophet, and have his name attached to them in the Septuagint version—made about 260 B.C.—which declares also that he wrote them very soon after the Jews had been carried captive and their city destroyed. This declaration the subject-matter and style very well sustain. The book is divided into five parts by peculiarities of structure which, appearing fully in the original, are partly preserved in the Septuagint, but are noticed in the English translation only by the number of chapters and verses being retained. The first, second, and fourth parts each contain 22 verses, which, with one or two variations, are arranged in the order of the Hebrew alphabet and all begin with the corresponding letter; the third multiplies this arrangement by three—each letter beginning three verses in succession—so that the whole number of its verses is 66; and the fifth contains 22 verses, but their initial letters are not in alphabetic order like the rest. I. Lamentation over the solitariness of Jerusalem after the people had been carried captive: the change in its civil state and religious privileges mourned over; its sins acknowledged as the justly procuring cause; its friends complained of as false, timid, and cruel; the Lord penitently sought as the only source of help. II. The destruction of the city lamented: of its dwellings, palaces, altars, temple, gates, walls, ramparts, and strongholds; the sufferings of little children bewailed; mourning by the young and old over the strong and the weak slain in the streets; the sorrow aggravated by the exultation of enemies over the city that had once been called "the perfection of beauty and joy of the world;" the false prophets condemned for misleading the people; and the Lord again invoked as alone able to save. III. Lamentation of the prophet as representing the people himself, and perhaps Christ, who was thought by some to be Jeremiah, probably because of his tears over the sins and sorrows of men, his estimate of himself as eminently the man who had seen affliction through the visitation of God upon sin; his hope arising in darkness through his remembrance of the divine mercy, compassion, and faithfulness; his conviction of the good resulting from both hoping and waiting for the salvation of God, and from bearing the yoke submissively, seeing that afflictions have a benevolent design and are not to continue forever; the afflicted exhorted to try their ways, acknowledge their transgressions, and turn to the Lord; deliverances recounted which the prophet had already received from the depths of the dungeon into which he had been cast. IV. Lamentation over the desolation of the land, especially as contrasted with its former prosperity and glory: the sons of Zion, once regarded as fine gold, now compared to earthen vessels; mothers once tender and self-denying, now selfish and cruel; persons once living in luxury and clothed in scarlet, now desolated and defiled; the protracted misery of Jerusalem regarded as more bitter than the sudden destruction of Sodom; and all this confessed to be the result of its own transgressions, of the sins of its prophets, and the iniquities of its priests. V. Final appeal to the Lord as alone able to deliver and willing to forgive: the calamities of the nation again recited; the sins that caused them penitently confessed; and God, as eternal and almighty, entreated to turn his people back to himself and to renew the blessings they had formerly enjoyed.

LA METTRIE, JULIEN OFFRAY DE, 1709–51; b. France; educated for the church, he was disinclined to adopt that profession, and studied medicine at Leyden with Boerhaave. Being in Paris in 1742 he was appointed physician to the *gardes française*, and, with his regiment, was present at the important battles of Fontenoy and Dettingen. In 1745 he began to make public atheistic views which he had formed, the result being that he was deprived of his position and driven out of France and Holland. Up to this time he had published three philosophical treatises: *Histoire Naturelle de l'Ame; Politique du Médecin de Machiavel;* and *L'Homme-machine.* Having attracted the attention of Frederick the great, he was by him invited to Berlin, appointed to a position, and encouraged to continue his authorship. He accordingly wrote *L'Homme-plante; Réflexions sur l'Origine des Animaux;* and *Vénus Métaphysique, ou Essai sur l'Origine de l'Ame Humaine.* The materialism of Mettrie was due to the effect upon his mind produced by a serious fit of sickness. Finding that his mind and body were apparently becoming enfeebled together, he conceived the idea that the death of the soul must be simultaneous with that of the body. Voltaire, who was best acquainted with him, said he was "a fool that never wrote except when intoxicated."

LAMINA'RIA. See TANGLE.

LAMINA'TION, the arrangement of rocks in thin layers or laminæ, the condition of a large proportion of the earth's strata. Shale deposits exhibit this structure very plainly, being frequently easily separable into the thin laminæ in which they were originally

deposited. Shale is the fine sediment that settles down at the bottom of some tranquil or slightly moving water. The laminæ indicate interruption in the supply of the materials, which may have been occasioned by successive tides, by frequent or periodical floods, or by the carrying medium having access to a supply of different material, passing, e.g., from mud to sand, and back again to mud. The laminæ of the brick-clay deposits are separated, in many places, by the finest sprinkling of sand, which is almost invisible in the vertical sections. The layers are occasionally obvious, from their being of different shades of color, often produced by the bleaching of the layers when they were deposited; but frequently the various laminæ of a bed are so united, and the bed so homogeneous, that except when the face is exposed to weathering, the laminated structure is not visible. This condition seems to have resulted from the shortness of the interruptions in the deposit not permitting the solidification of any of the layers until all was deposited, when the whole set cohered together as a single bed.

LAM'MAS-DAY, Aug. 1, is one of the cross quarter-days, or half-quarter days, in England. On this day, which is the feast of St. Peter ad Vincula, it was customary in early times to make offerings of the first-fruits of the harvest, and hence the feast took the name of *Hlafmæsse* (Ang.-Sax., loaf-mass or loaf-festival), afterwards corrupted into Lammas. In Scotland, it is the practice with farmers to pay the half-year's rent due at Whitsunday on Lammas-day.

LÄM'MERGEIER (*Gypaëtos barbatus*), a large bird of prey, also called the BEARDED VULTURE, BEARDED GRIFFIN, and GIER-EAGLE. It is the only known species of its genus, which forms a connecting link between vultures and eagles, although commonly ranked among the *vulturidæ*, to which it approaches most nearly. The full-grown lämmergeier is of a shining brownish black on the upper parts, with a white stripe along the shaft of each feather; the head is whitish, with black stripes at the eyes; the neck and underpart of the body are rusty yellow. It is 4 ft. high when sitting; nearly 5 ft. long; and from 9 to 10 ft. in expanse of wing. It is very bold and rapacious, swooping down on hares, lambs, young goats, chamois, etc., and sometimes carrying off children. It lives on animals newly killed, eating carrion only when pressed by necessity. It was once pretty common in the Alps, but is now rare. It is found also in the Pyrenees, and in the mountains of Asia, South America, and the n. of Africa, and will soar high above the loftiest peaks.

LAMMERMOORS', a range of low hills in Scotland, running in an e.n.e. direction for one half of their length on the boundary-line between East Lothian and Berwickshire, the other half lying in the south-eastern corner of the former county, and forming, where it meets the German ocean, a bold, rocky, and dangerous coast. The Lammermoors send off several minor ranges southwards into Berwickshire. The highest summits are Lammer Law (1728 ft.) and Spartleton (1534 feet).

LAM'NIDÆ, a family of sharks, represented by two well-defined groups, viz.: *lamnæ*, having lanceolate teeth, sigmoidally curved and not serrated, including the mackerel or green-back shark, and the ferocious *man-eater* of the American coast; and *carcharodontes*, having triangular and serrated teeth, including *carcharodon Atwoodii*. Enormous teeth of carcharodon have been found in the tertiary formation and occasionally in the cretaceous, and teeth undistinguishable from carcharodon have been dredged from great depths in the Atlantic ocean by the "*Challenger* expedition." Remains of other sharks have been found occasionally in the paleozoic, more frequently in cretaceous (upper greensand), and in eocene tertiary (London clay).

LAMOILLE, a co. in n. Vermont, watered by branches of the Onion river; the Lamoille flows through it centrally, and a few small lakes appear in the northern section; 445 sq.m.; pop. '80, 12,684. It includes some of the northern spurs of the western range of the Green mountains, and the three peaks of mount Mansfield in the western part, 20 m. n.w. of Montpelier, and 24 m. s. by n. from Burlington, the highest having an altitude of 4,430 ft. above the level of the sea, and called respectively the Chin, the Nose, and the Forehead. The rocks on these mountains are partly of old red sandstone, containing iron ore and manganese, and in some localities have a geological formation consisting of hornblende, granite, and gneiss. It has extensive forests of evergreen trees, and rich green grass on the surface of the hills, changing into a growth along the river bottoms of beech and sugar-maple, white oak, ash, etc. It has fine pasturage: hay, oats, wool, buckwheat, rye, and potatoes are the staple products, and maple sugar is an article of export. It is intersected by the Burlington and Lamoille railroad, and the Portland and Ogdensburg railroad (Vermont division). The manufactures are lumber, leather, and starch. Number of farms of all sizes in '80, 1,737. Cattle, sheep, and swine are raised, and horses for the New England market. Value of live stock in '70, $1,060,330; value of home manufactures, $3,830; valuation of real and personal estate, $6,015,609; cash value of farms in '82, $2,826,464. Seat of justice, Hyde Park.

LAMOILLE RIVER, in n. Vermont, rises in Longpond, about 30 m. n.e. of Montpelier, in the extreme s. part of Orleans co. After flowing s.w. for a short distance in Caledonia co., it changes its course to w.n.w. through Lamoille co., and again to s.s.w. in Franklin co., thence through Chittenden co., emptying into lake Champlain near the s. extremity of Grand island. Winding among the gentle slopes of the Green moun-

tains, its course is marked by fertile valleys, and, with its tributaries, it furnishes extensive water-power for a large number of saw mills in the manufacture of lumber; about 7 m. from its mouth it falls 150 ft. in a course of 300 yards. Slate, gneiss, and limestone are found along its banks, and granite is quarried in the vicinity of the towns.

LAMORICIÈRE, CHRISTOPHE LÉON LOUIS JUCHAULT DE, a French general, was b. at Nantes, Feb. 5, 1806, studied at the ecole polytechnique, and after the revolution of 1830 went to Algeria as a lieut. of engineers. In 1833 he became chief of the battalion of zouaves; in 1835, lieut.col.; and in 1837, col. He particularly distinguished himself at the siege of Constantine. In 1843 he was appointed a gen. of division; in the following year commander of the legion of honor; and in 1845, interim-governor of Algeria. To him belongs the glory of concluding the war in Africa, where he had made no fewer than 18 campaigns, by forcing Abd-el-Kader to surrender in 1847. On the outbreak of the revolution in Feb., 1848, he nearly lost his life in endeavoring to proclaim the regency of the duchess of Orleans. In June, 1848, he commanded the attack on the barricades, and quelled the anarchic tumults of the socialists. He was war minister during the government of gen. Cavaignac, to whose republican party he afterward attached himself in the legislative chamber; but being a very decided opponent of the schemes of Louis Napoleon, he was arrested on the occasion of the *coup d'état* of Dec. 2, 1851, and at first imprisoned in Ham, but afterward conveyed out of France and set at liberty. During his exile, which he spent in Germany, Belgium, and England, the great soldier became *devout*, as his countrymen phrase it; and when the Italian war of independence threatened the safety of the pope, Lamoricière proceeded to Rome in 1860, and was appointed by Pius IX. commander of the papal troops. He was, however, compelled to surrender with his whole force to the Sardinian gen., Cialdini, at Ancona. He died Sept., 1865

LA MOTTE-FOUQUÉ. See FOUQUÉ, *ante.*

LA MOTTE-VALOIS, JEANNE DE LUZ DE ST. RÉMY, Comtesse de, 1756–91; b. Champaigne, France; an irregular descendant of Henry II. She was an adventuress who married a worthless count de La Motte, was involved in intrigues with the cardinal de Rohan; afterward in some crime concerning a diamond necklace which, in her memoirs, she accuses Marie Antoinette of having been an accessory to; was condemned, evaded prison, and escaped to London, where in a revel she is said to have fallen out of a window and died. She is supposed to have been under pay of Marie Antoinette. The memoirs alluded to were seized on their first appearance by the authorities, and the entire edition searched for and supposed to be destroyed; but it subsequently reappeared under the title of the *Vie de la Comtesse de La Motte.* Carlyle has written a story of *The Diämond Necklace.*

LAMOURE, a co. in central Dakotah, formed since the census of 1870; about 1800 sq. miles. It is watered by the James river, flowing s.e. from counties in the north, and constituting its s.e. boundary line. Pop. '80, 20.

LAMOV', or LAMOV, the name of two towns of European Russia, in the government of Penza, and on the river Lamov, a branch of the Mokscha, which itself is, through the Oka, a feeder of the Volga. Verknii Lamov (Old or Upper Lamov) is about 64 m. w. n.w. from Penza. It has seven churches. Pop. '67, 8,072. Nijni Lamov (New or Lower Lamov) is 9 m. s.w. from Verknii Lamov, further down the river. It has three churches, and an annual fair, which attracts traders from all parts of Russia. Pop. '67, 9,514.

LAMPADEPHO'RIA, the name given to a ceremony customary in Athens at the celebration of the festivals of the so-called "fire-gods," Prometheus, Vulcan, and Minerva. Runners carrying lighted torches ran races between the altar raised to these gods in the outer Ceramicus, on the s. side of the Acropolis, and the latter point, which was the goal. The distance was about half a mile, and the object was to convey the lighted torch to the goal without permitting it to be extinguished. This was accomplished by means of different lines of runners, each of whom carried the torch in turn, passing it to his successor, the line whose torch first reached the goal still burning being considered victorious. The ceremony is supposed to have symbolized the theft of fire by Prometheus from the chariot of the sun. After the battle of Marathon it was introduced into the festivals of Pan. In the time of Socrates horses were used in these raees.

LAMPÁSAS, a co. in central Texas, has for its w. boundary the Colorado river and a small branch. It is also drained by the Lampásas creek, a branch of the Leon river, and the little rivulets that run into it; 800 sq.m.; pop. '80, 5,421—5,354 of American birth, and 86 colored. The surface is uneven and thinly timbered. The soil is generally fertile, being adapted to the production of cotton, corn, wheat, rye, and oats. There is good pasturage; and horses, cattle, sheep, and swine are raised and exported. Value of manufactures in 1880, $63,277, the product of 13 establishments. At Lampásas in the s. portion are medicinal springs. Number of farms in '80, 626; value of all live stock, $208,853; valuation of real and personal estate, '80, $1,169,186. Seat of justice, Lampásas.

LAMP-BLACK, the soot produced by burning resin, turpentine, pitch, oil, and other matters, in such a manner that large volumes of smoke are formed and collected in

properly arranged receptacles. Lamp-black is the coloring matter of black and slate-colored paints.

Large quantities of this pigment are made in Germany by burning the refuse resin and fragments of fir and pine trees. The combustion is carried on slowly, and the dense smoke passes up a long flue, at the top of which is a large hood made of coarse woolen cloth. In this hood the carbon is deposited rapidly at the rate of 20 to 30 pounds an hour, which is collected by lowering the cloth hood, and shaking it out. In Great Britain a similar process is adopted; but large quantities of an inferior kind are also collected from the flues of coke-ovens; and a superior kind, known as *bone-black*, is obtained from the flues of kilns in which bones are calcined for manure. By mixing lamp-black in various proportions with white-lead, every gradation of color, from jet black up to slate and gray, can be easily produced.

LAMPEDU'SA (anc. *Pelagia*), a small uninhabited island in the Mediterranean sea, about midway between Malta and the coast of Tunis. It belongs to the kingdom of Italy, having been formerly a dependency of Sicily. It is about 7 m. in length, and in most places not quite one m. in breadth, its circuit being about 13 miles. The w. part of the island is covered with dwarf olives; and these and other shrubs supply great quantities of firewood, both to Tripoli and Malta. Great numbers of wild goats inhabit the island. Lampedusa was at one time inhabited. Near it are the two islets of Lampione and Linosa.

LAMPREY, *Petromyzon,* a genus of cartilaginous fishes, dermopterous (q.v.), and having a circular mouth formed for sucking (*cyclostomous*). They are of eel-like form, and have no scales. The skeleton is very soft and imperfect. The tongue acts as a piston in the sucking mouth, which is armed with numerous hard teeth, or tooth-like tubercles. There are seven roundish gill-orifices on each side; the German name is *Neun-Augen* (nine-eyes). Lampreys have the power of drawing in as well as of expelling water through the gill-orifices, and thus respiration is carried on even when they are firmly attached to some object by the sucking mouth. Lampreys often attach themselves very firmly to stones, and seem to rest with the body floating in the water: they live by sucking the blood of fishes, the skins of which their teeth readily pierce, and which are unable to shake them off. They eat also any soft animal matter. The species are numerous, and are widely distributed in the seas of different parts of the world. Some of them are periodical visitants of fresh waters, as the Common Lamprey (*P. marinus*), found on the shores and in the rivers of most parts of Europe. It sometimes attains a length of more than 3 ft., and is often 2 ft. long. It ascends rivers in the latter part of spring or beginning of summer, for the purpose of spawning. It was formerly in the highest esteem for the table, and it is an old custom for the city of Gloucester to present a lamprey pie annually to the sovereign. Worcester is also famous for its lamprey pies and potted lampreys. In Scotland a strong prejudice exists against the lamprey.—The lamprey of North America, although very similar, is said to be a distinct species (*P. Americanus*).—A smaller species, the River Lamprey (*P. fluviatilis*), often called the Lampern, is very abundant in some of the rivers of England, at certain seasons of the year. It is seldom more than 15 or 18 in. long, blue above, silvery white beneath. It is used for pies, like the common lamprey.—A little blood thrown into water where lampreys are supposed to be, soon attracts them to the spot. They are caught by baskets and other traps, like eels. They are very tenacious of life, living for days in a damp place, out of the water.

LAMPRIS, a genus of fishes belonging to the family *scomberidæ* or mackerel family; body oval, greatly depressed, small deciduous scales; teeth wanting in adults, small mouth; a single elevated and elongated dorsal fin, sides of tail carinated, numerous pyloric cæca, and a large, posteriorly bifurcate air-bladder. See Opah.

LAMPS are contrivances in which to burn any light-giving material, and so make use of its illuminating power. The most primitive lamps were probably the skulls of animals, in which fat was burned; and certain sea-shells formed admirable lamps for those to whom they were attainable. To this day, there may occasionally be seen suspended in the cottages of Zetland, shells of the "roaring buckie" (*fusus antiquus:* see Fusus), which form, perhaps, the most ancient kind of lamp in existence.

When pottery and metal began to be used, the principle of these natural lamps was for a long time retained, as seen in ancient Egyptian, Greek, and Roman lamps, and in the stone cups and boxes of northern nations. The invention of lamps has been attributed to the Egyptians, but it is far more probable they received it from the older civilization of India. Herodotus (ii. c. 62) reminds us of the Chinese feast of lanterns, by speaking of the feast of lamps at Saïs, in Egypt. Such lamps were called *lychna* by the Greeks, and *lucernæ* by the Romans, and various modifications of the form are frequently found in the ruins of Greek and Roman cities; very considerable numbers have been obtained from the excavations of Tarsus and of Pompeii and Herculaneum. The principle in all is the same. At first, these *lucernæ* were made of unglazed pottery, and only with one wick-hole; but better material and more elaborate forms were introduced, and their light-giving power was increased by their being made to hold several wicks, from two to twelve. The wick used in this lamp was generally made of flax-tow, sometimes, however, of rushes and other vegetable fibers.

Amongst the northern nations of antiquity, lamps were in use, but the difference of climate necessitated a different kind of lamp. The limpid oils of the present day were unknown to our Celtic and Saxon forefathers; besides, the cold winters would have solidified them, and they would not have been drawn up by the wick, if arranged as in the old Roman and Greek *lucernæ*. The solid fat of various animals was their chief illuminating material, except on the sea-coast, where seal and whale oil occasionally helped them. Small open stone pots, afterwards exchanged for metal, were used, and being partly filled with grease, a wick was thrust down through the middle, and being lighted, consumed the fat as it melted. Stone cups of this kind are occasionally dug up in Scotland and elsewhere: in principle, they are the same as the padelle, used in Italian illuminations, and the old grease-pots, which formed the foot-lights of our theaters not many years since, and which may still occasionally be seen in the traveling-shows at country fairs. The Esquimaux form square boxes of soap-stone, and use them in the same way.

No great improvement took place in the construction of lamps until the beginning of the present century. Taste had been shown in the designs, but the principle remained the same: a wick sucking up oil from the reservoir of the lamp to supply itself during combustion, and nothing more, if we except the improvement effected by the invention of M. Argand in 1784. See ARGAND. In 1803 M. Carcel, another Frenchman, made an excellent improvement on the lamp by applying clock-work, which acts by raising the oil up tubes in connection with the wick, so that the latter is kept continually soaked. If properly managed, this is perhaps the best of all oil-lamps, as it will keep up a well sustained and brilliant light for seven or eight hours, and the light rather increases than otherwise as the lamp burns and becomes warmer, thereby rendering the oil more limpid. But the Carcel lamp has two disadvantages: it is expensive, and is easily disarranged, therefore it has never become common.

The French moderator lamp is much simpler, and appears to overcome the difficulties of the case. The body of this lamp consists of a cylinder or barrel, the lower part of which contains the store of oil. On the top of the oil rests a piston, which is constantly pressed down by a spiral spring, situated between it and the top of the barrel. Through the piston is inserted a small tube, which passes up to the burner at the top; and the pressure of the spring on the piston causes a constant stream of oil to rise up through this tube and feed the wick. What is not consumed flows over the burner, and back into the barrel above the piston. It is above the piston also that fresh oil is introduced. When the piston has reached the bottom, it is wound up again by a rack and pinion, and a vacuum being thus formed, the oil above it is forced to the under side through a valve kind of contrivance round its edge.

It is obvious that in this machine the flow of oil will be greatest when the piston has been newly wound up, and the spring is at its greatest tension. This inequality is regulated, or *moderated*—hence the name of the lamp—by an extremely ingenious contrivance, which narrows the passage for the oil when the pressure is strongest.

The introduction of mineral oils—known under the various names of paraffine oil, petroleum, kerosene, naphtha, shale oil, etc.—has in a great measure superseded the use of animal and vegetable oils for lighting purposes. The great recommendation of the former is their cheapness. One great difficulty with the mineral oils at first was that, without careful preparation, they are apt to give off inflammable vapors at a low temperature, which give rise to dangerous explosions. This has been obviated by processes of rectification which get rid of the lighter and more volatile ingredients. An oil that gives off an inflammable vapor at a temperature under 120° F. can hardly be considered safe. Paraffine oil from Boghead coal will not form an explosive mixture under 140° F. It is illegal to store or issue oil forming an inflammable mixture under 100° F. Another difficulty was to make the oil burn without smoke. The kind of lamp found to effect this purpose best was introduced into Great Britain from Germany about 1856, and, with minor improvements, the form is still adhered to. The body of the lamp is a globular-shaped reservoir of glass or stoneware for the oil, mounted on a foot or pedestal; into this a brass wick-holder is screwed, the wick being raised or lowered by means of a rack and pinion. The peculiarity of the paraffine lamp is a dome-shaped cap surrounding the wick-tube, and having a slit running across it, through which the flame issues. A long glass chimney rests on a ledge or gallery around the base of the cap; and by perforations in the brass an air-chamber is formed below. The chimney causes a strong draught through this chamber, and the cap or dome deflects the current of air, and makes it impinge against the flame as it passes through the slit, thus producing perfect combustion and a white, brilliant light without smoke. The demand for these lamps has become so great, that the manufacture and sale of them forms an extensive business of itself.

A great drawback in the use of the common paraffine lamp is the expense and annoyance attendant on the frequent breakage of the glass chimney. To obviate this, Rowatt & Son of Edinburgh have introduced their patent *Anucapnic* (smokeless) lamp, which dispenses with the glass chimney altogether. Instead of it, a second cap or dome is placed over the ordinary one, leaving a narrow space between the two. As the two cones get hot, a powerful draught is created, and two separate currents of air are directed against the flame, one by the lower cap, as in the ordinary lamp, and the other from

between the two caps. The result is perfect combustion, without a chimney. A large glass globe is used to protect the flame from currents of air, as well as to disperse and soften the light. Such a globe is also often used with the ordinary lamp in addition to the chimney, a flange for supporting it being added to the burner. Mineral oil thus burned furnishes a satisfactory light, rivaling gas in cheapness.

LAMP'SACUS, a city of Mysia in Asia Minor, on the Hellespont, near where it begins to open into the Propontis. The original name was Pityusa, from the number of pine trees which grew there. A colony of Ionians from Phocæa and Miletus settled there, calling it Lampsacus from a Greek word denoting to *shine*, an oracle having directed them to settle on the spot where they first saw the light. It had an excellent harbor, and became a great commercial mart. During the Ionian revolt it passed into the power of the Persians, but on their overthrow at Mycale 479 B.C. it became the ally of Athens, to which it remained faithful until the Athenian disasters in Sicily, when it revolted. The Athenians, however, soon reducing it, held it until it was taken by Alexander the great. Afterwards it submitted to the Romans, under whom it flourished for a long time. Several distinguished men were natives of this city, among whom were Anaximenes the orator, Charon the historian, and Metrodorus the Epicurean philosopher. It was the chief seat of the worship of Priapus, who was said to have been born there of Aphrodite. A small town called Lamsaki occupies the site of the ancient Lampsacus, of which now no trace remains.

LAMP, SAFETY. See SAFETY LAMP, *ante*.

LAMP-SHELL (*Terebratula*), a genus of brachiopodous mollusks (see BRACHIOPODA), having a delicate shell, of which one of the valves is larger and more convex than the other, prolonged backwards into a kind of beak, which is pierced by a hole or fissure. Internally, there is a delicate bony framework, of two branches, attached to the dorsal valve, by which the *arms* (see BRACHIOPODA) are supported. This is called the *loop*, and often by shell-collectors the *carriage-spring*. It is well seen in many fossil *terebratulæ*. The recent species are numerous, and very widely distributed from the polar to the tropical seas; the fossil species are extremely numerous.

LAMPSON, Sir CURTIS MIRANDA, b. Vt., 1806; removed to England in 1830, and was naturalized in 1848. He devoted himself to mercantile pursuits in London, and acquired a fortune. In 1856 he was appointed a director in the first Atlantic cable company, became vice-chairman, and 10 years later was made a baronet on account of his valuable services to that enterprise. He was a friend of George Peabody, and was appointed one of the trustees of the Peabody fund. In the year '80 he was deputy governor of the Hudson's Bay company. He d. 1885.

LAMPY'RIS AND LAMPY'RIDÆ. See GLOWWORM.

LAMSON, ALVAN, D.D., 1792–1864; b. Mass.; having pursued a preparatory course of study at Phillips academy, entered Harvard university, graduating in 1814, and in the same year accepted the position of tutor in Bowdoin college, Brunswick, Me. In 1818 he became the pastor of the First church in Dedham, Mass., after a 2 years' course of theological study at the Harvard divinity school, and remained in charge of that pastorate until 1858. In 1857 he published a carefully prepared volume of sermons, and was a frequent contributor to the *Christian Examiner*.

LAMY, JOHN B., D.D. See page 894.

LAN'ARK, a parliamentary and municipal burgh and market t. of Scotland, in the co. of the same name, is situated on an elevation rising from the Clyde, 30 m. s.w. of Edinburgh. Its antiquity is attested by the fact, that here, in 978, Kenneth II. assembled a parliament, or meeting of the estates of the realm. Little trade is here carried on; but the town derives some support from the numbers attracted to this district by the beauty of the scenery in the vicinity. Lanark unites with Hamilton and four other burghs in sending a member to parliament. Pop. '81, 4,908.—About a mile to the s., lies the manufacturing village of NEW LANARK (pop. 973), celebrated as the scene of Robert Owen's experiment (1815–27) for the social improvement of the working-classes.

LAN'ARK, a co. in e. Ontario, Canada, drained by the Mississippi river (rising in Mississippi lake, in the eastern portion, and flowing n. 100 m. into the Ottawa river), by the Clyde, the Tay, navigable as far as the Rideau canal, and the river Rideau, a branch of the Ottawa. It is partially bounded on the s. by lake Rideau, and the Rideau canal, which passes through the lake, connecting the Ottawa river with lake Ontario, and the entire southern portion is dotted with picturesque little lakes. It is celebrated for its beautiful scenery, 1194 sq.m.; pop. '81, 33,975—2,419 of English birth or descent. It is traversed by the Brockville and Ottawa division of the Canada Central railway, the branch road from Smith's Falls to Perth, and the Carleton Place extension to Pembroke. It has extensive mineral deposits, saw and grist mills, and an important trade in lumber. Freestone is quarried, and leather, machinery, and furniture are manufactured. It is divided into two ridings. Capital, Perth.

LAN'ARKSHIRE, or CLY'DESDALE, an inland co. of Scotland, lies w. of the shires of Edinburgh, Linlithgow, and Peebles. Its length is 52 m., and width 34 miles. Its area is 889 sq.m., or 568,868 acres, and its valued rental, including railways, etc., in 1877–78 was £2,060,929. This county is subdivided into upper, middle, and lower wards. The

first of these comprises more than one-half of the county, and consists in a great measure of hills and moorish ground; the second contains about 100,000 acres, much of which is unprofitable; the third, which contains the city of Glasgow, is nearly all cultivated, although very little of the soil, unless that bordering on the Clyde, is of first quality. The principal hills are the Lowthers, which rise in Green Hill to the height of 2,403 ft.; Tintock is 2,335 ft. high. In the upper ward is the village of Leadhills, which is 1323 ft. above sea-level, being the highest inhabited place in Scotland. This county possesses great mineral wealth. There are upwards of 200 collieries, and 14 iron-works, having nearly 100 blast-furnaces. The cotton, flax, and woolen manufactures, which are very extensive, and constitute one of the most important sources of wealth in the country, are carried on in and around Glasgow. The county is watered principally by the Clyde (q.v.) and its affluents. Lanarkshire was famous for its orchards as early as the time of the Venerable Bede. They yielded, early in the present century, as much as £8,000 yearly, but have latterly fallen off; and the ground is more profitably employed in producing gooseberries, vegetables, etc., for the Glasgow market. The climate of Lanarkshire is moist, and in many of the lower districts mild and genial, but often cold and boisterous in the high grounds. It is not in general well suited for raising grain-crops, but much of it is excellently adapted for the rearing of stock and for dairy purposes. In 1876 the total acreage under rotation was 243,442; of which there were 3,493 acres of wheat, 553 barley, 45,698 oats, 9,961 acres turnips, and 6,963 acres potatoes. The total acreage under corn crops was 52,151; under green crops, 18,441; under clover and grasses, 72,016; and under permanent pasture, 100,217. Of live-stock, the numbers were: horses used for agricultural purposes, 7,522; cattle, 65,147; sheep, 213,535; swine, 8,268. Besides Glasgow, Lanarkshire contains the royal burghs of Lanark (which is the county town), and Rutherglen, the towns of Hamilton, Airdrie, Coatbridge, Wishaw, Motherwell, etc. Lanarkshire, which, for parliamentary purposes, falls into a northern and a southern division, sends two members to parliament; constituency in 1876–77, 12,636. Pop. '81, 904,405.

LAN'CASHIRE, one of the largest and the most populous counties in England, is bounded on the e. by Yorkshire, and on the w. by the Irish sea; on the n. by Cumberland and Westmoreland, and on the s. by Cheshire. Area, 1,207,926 statute acres. Pop. 3,454,225. Increase in 10 years, from 1871 to 1881, 634,730 souls. Annual value of property, rated under schedule A, in 1871, £12,888,601; annual value upon which direct taxes were paid in 1871, including property, land, occupiers, and income taxes, railways, canals, mines, etc., £27,923,057. An outlying portion of the county, called Furness, whose greatest length is 25 m. and greatest breadth 16 m., is separated from the main portion by Morecambe bay. The larger division is intersected in the n. and e. by branches of the hill system which runs southward through the counties of York and Derby, while Furness has on its eastern border the Cumbrian range. Towards the coast on the w. the surface is flat, particularly in the larger division, with a curving outline and large stretches of sand, over which in various places the sea seems to be extending its dominion. The chief rivers are the Mersey, Ribble, Lune, Wyre, Leven, and Duddon, all of which enter the Irish sea by estuaries more or less important; Morecambe bay being the chief indentation. The climate is moist, but mild, the soil being peaty in the upland districts, but a fertile loam for the most part in the flats. Oats and potatoes are general crops; wheat also grows well in the southern division. Coal is the chief mineral product (the coal-field being estimated at 400 sq.m. in extent); lead and copper also occur, and iron is plentiful in Furness. The whole surface is covered with a network of canals and railways, which connect the principal manufacturing and commercial centers. See MANCHESTER, LIVERPOOL, PRESTON, BLACKBURN, etc. Lancashire is famous for its immense cotton manufactures, which in 1879 numbered 2,000, giving employment to 326,801 persons. The other textile manufactures are likewise of considerable importance. The manufacture of all kinds of machinery is extensively carried on; and ship-building, sail-making, and kindred trades are in a flourishing condition. Lancashire returns 8 members to parliament for the county, and 24 for boroughs within the county. The district of Furness presents many attractions to the tourist. On its north-eastern border stretches the beautiful lake Windermere, westward from which is Easthwaite Water; and further w., Coniston lake, and the "Old Man of Coniston," with a height of 2,577 feet. In the peninsula between the rivers Duddon and Leven is Furness abbey, a noble ruin, the effect of which is enhanced by the picturesque beauty of the scenery in the vicinity. The abbey was founded by Stephen, earl of Mortagne or Mortoil, and afterwards king of England in 1127. The church is 287 ft. long, the nave 70 ft. broad. In the township of Whalley, in the e. of Lancashire, is a very old church, and in the churchyard are three crosses, apparently of Saxon origin. In the vicinity are the ruins of an abbey of about the same age as Furness. A few miles from Whalley is the Roman Catholic college of Stonyhurst. The only islands along the coast, of which Walney island is the largest, are off the southern extremity of Furness.

LANCASTER, a co. in s.e. Nebraska, drained by Salt or Saline creek, and tributaries of the Missouri, Kansas, and Platte rivers. It is intersected by branches of the Union Pacific railroad, the Burlington and Missouri river, and the Atchison and

Nebraska railroad; 864 sq. m.; pop. '80, 28,090—22,053 of American birth. The surface is uneven, with good pasture and fertile prairie land, thinly timbered and productive of grain; it is also adapted to stock-raising. It has salt-basins and salt springs, and quarries of building stone, carboniferous limestone, and cretaceous sandstone. Among the products are tobacco, wool, Irish potatoes, honey, flax-seed, and sorghum. Assessed valuation, real and personal estate, '80, $4,929,383. Value of farms in '70, $2,136,053. It contained in '70, 969 farms. Value of all live stock in '70, $374,029. Value of home manufactures. $18,396. Seat of justice, Lincoln, the capital of the state.

LANCASTER, a co. in s.e. Penn., has for its w. boundary the Susquehanna river, and for the s.e. Octorara creek. The Conestoga creek crosses it from n.e. to s.w., and South mountain extends along the n.w. border. Mine ridge is in the s.e. It is traversed by the Columbia and Port Deposit division of the Pennsylvania railroad, and the Reading and Columbia railroad; 1,050 sq. m.; pop. '80, 139,444—132,393 of American birth. Its mineral resources comprise iron, nickel, micaceous roofing slate, blue limestone and Potsdam sandstone; marble, chrome, and magnesia are also found. It had in '70, 17 mines of iron ore, employing 864 men and boys; 1 nickel mine employing 48 men and boys; and 4 stone quarries, employing 43 men. The soil is a rich loam, of which lime forms a principal part, and is exceptionally fertile. The scenery is delightful, the surface of the country being diversified by low hills and broad green valleys. Its products are fruit, sorghum, corn, hops, honey, wheat, buckwheat, tobacco, barley, wool, flax, oats, and sweet potatoes. The yield of wheat in '80 was 1,929,767 bushels; of tobacco, 23,946,326 lbs.; of corn, 3,293,298 bush.; and a very large yield of dairy products. Cash value of farms in '70, $70,724,908. Number of farms, '80, 9,070. Value of live stock in '80, $4,605,945. It has excellent water-power, and large manufactories of lumber, tin, copper, sheet-iron ware, and machinery; also cotton and woolen and paper factories, 12 breweries, and planing and saw mills. It has extensive forests of oak, hickory, chestnut, and ash. Assessed value real and personal estate, $94,446,206. Seat of justice, Lancaster.

LANCASTER, a co. in South Carolina, has for its w. border the Catawba river and the state of North Carolina on the n. and n.w. It is bounded on the e. by Lynch's creek; 530 sq. m.; pop. '80, 16,903—16,885 of American birth, and 5,924 colored. The surface is undulating; in some portions densely wooded; in others the fertile soil produces cotton, tobacco, wool, wheat, fruit to some extent, oats, rye, and the best sweet potatoes; other products are Indian corn and grass, honey, sorghum, and sugar-cane. Gold is found near the Catawba river. It has one quartz mine employing 4 men; capital, $45,000; annual product, 1,500. Value of home manufactures in '70, $452. Value, '80, of live stock, principally cows, sheep and swine, $229,316. It contained in '80, 1,965 farms. It had 24 manufacturing establishments, employing 43 hands, with a capital of $57,590, and an annual product of $177,401. Assessed value real and personal estate in '80, $1,415,-215. Seat of justice, Lancaster Court-house.

LANCASTER, a co. in e. Virginia, has for its western border the Rappahannock, a navigable river, flowing s.e. past Windmill point into the Chesapeake bay, which is the s.e. boundary; 112 sq. m.; pop. '80, 6,160—6,150 of American birth, 3,157 colored. The surface is level and equally divided into forest and plain. That portion of the soil under cultivation is adopted to fruit, corn, winter wheat, rye, wool, and sorghum; other products are sweet potatoes and oats. Number of farms in 1880, 653. Horses and cattle are raised, and a larger number of swine. It has 12 manufacturing establishments, employing 69 hands, with a capital of $33,200 and annual product of $40,661. Seat of justice, Lancaster Court-house.

LANCASTER, a municipal and parliamentary borough and seaport of England, capital of Lancashire, is picturesquely situated on an eminence on the left bank of the Lune, near the mouth of that river, and 230 m. n.n.w. of London. The ancient castle, which overlooks the town, is now used as a county jail and court-house. The houses are built of the freestone quarried in the vicinity, and though the streets are narrow, the town is neat and well-built. The Lune is here crossed by a bridge of five arches, and by an aqueduct carrying the Lancaster canal across the river. The town contains numerous scientific, benevolent, and educational institutions. There is some trade in coal and limestone. The chief manufactures are furniture, cotton, silk, table-baize, American leather, cloth, and cast-iron work. In 1877, 533 vessels, of 113,401 tons, entered and cleared the port. Lancaster formerly returned two members to parliament, but was disfranchised in 1867 for corrupt practices at elections. Pop. '80, 20,724.

LANCASTER, a city in s.c. Ohio, on the Hocking river, near its source, 32 m. s.e. of Columbus, 21 m. n.e. of Circleville, 116 m. e.n.e. of Cincinnati, and 52 m. w.s.w. of Zanesville; pop. '80, 6,803. It is on the Hocking canal, and has a trade of a large and fertile section of country, where the vine is extensively cultivated, and is a central market for its produce. It is the junction of the Columbus and Hocking valley railroad and the Cincinnati and Muskingum valley railway. It has a pleasant and picturesque environment, and is a well-built town, with many elegant public buildings, a stone court-house costing $150,000, a national bank, 6 hotels, 9 churches, excellent public schools; and the state reform school for boys, with a farm of 1,400 acres, is 6 m. dis-

tant. It has 2 weekly newspapers. There are several manufactories; among them the machine shops of the Eagle machine company, and the Cincinnati and Muskingum valley railroad, planing mills, several flour and woolen mills, 2 breweries, and a large wine cellar capable of holding 40,000 gallons.

LANCASTER, a city of Pennsylvania, United States of America, 68 m. (by rail) w. of Philadelphia, on the Pennsylvania central railway. The Conestoga river, made navigable by dams and locks, runs through the city, and supplies it with coal and lumber. It has a large court-house and prison, a theater, seven banks, Franklin and Marshall college, high-school, 3 daily and 5 weekly papers, 3 cotton factories, iron-foundries, etc. It is particularly celebrated for the manufacture of rifles. Pop. '70, 20,233.

LANCASTER (*ante*), a city of Pennsylvania, in the center of the limestone region, formerly the capital of the state. During the occupation of Philadelphia by the British, 1777–78, the Continental congress sat in Lancaster. The city is regularly laid out, and well built, principally of brick. Manufacturing industries are cotton, tobacco, and lager beer. Lancaster county is an important tobacco district, and the city manufactures many millions of cigars annually. There are 39 churches, 4 nat. banks. Streets and houses are lighted by gas, and there is an excellent fire department. Pop. '80, 25,769.

LANCASTER, Duchy of. Lancaster is a duchy and county palatine (see Palatine) of England, created by royal charter, in which respect it differs from Durham and Chester. Edward III., on the death of Henry, duke of Lancaster, conferred the duchy on John of Gaunt and his heirs forever. During the wars of the Roses Henry IV. and Edward IV. both endeavored so to settle the duchy that it should descend to the heirs of their body apart from the crown, and continue with them in the event of their losing the latter. The result of these several attempts has been the preservation of the duchy as a separate possession in order and government, but united in point of inheritance. The revenues of the duchy form no part of those hereditary revenues in lieu of which the civil list (q.v.) was granted. The net proceeds are paid over to the privy purse, and wholly exempted from parliamentary control, except that the annual account for receipt and expenditure is presented. The county palatine forms only a portion of the duchy, which includes considerable estates not within the county palatine. There is a chancellor of the duchy (i.e., of the part of it which does not lie within the county), and of the county palatine, which two offices are generally united. The duchy court of Lancaster, held at Westminster, and presided over by the chancellor of the duchy, or his deputy, exercises jurisdiction in all matters of equity relating to the lands of the duchy. The administration of justice has recently been assimilated to that of the rest of England. The office of chancellor is a political appointment, which it is the practice to confer on a statesman of eminence, frequently a member of the cabinet, who is expected to devote his time to such larger questions occupying the attention of government as do not fall within other departments. The emoluments of the office are about £2,000 per annum. By 17 and 18 Vict. c. 12, the chancellor of the duchy, with the two lords justices of the court of appeal, form the palatinate court of appeal.

LANCASTER, Sir James, the first English navigator who commanded a fleet bound for the East Indies, sailed from Plymouth April 10, 1591. In 1600 the newly constituted *East India Company* intrusted him with their first expedition. Lancaster having, in the course of his voyages, collected a number of valuable documents in support of the existence of a n.w. passage, the government, acting on his advice, sent out an expedition to attempt to discover it. They discovered a strait in 74° n. lat., which was named by Baffin *Lancaster sound*, in honor of Lancaster. Lancaster was created a baronet for his services, and died in 1620. The history of his voyages has been preserved by Hakluyt and Purchas.

LANCASTER, Joseph. See Bell, Andrew, and Mutual Instruction.

LANCASTER GUN, a species of rifled cannon, which has been partially adopted in the British service. When the great difficulty of rifling heavy ordnance to an extent to give a sufficient rotary motion to the projectile became apparent, Mr. Lancaster devised a plan by which grooves might be dispensed with altogether. Instead of a strictly circular bore, he gave his gun an elliptical bore, the ellipse being of very small eccentricity. The major axis was not in one plane from end to end of the gun, but was made to revolve in the length, until it had moved round one-fourth the periphery of the ellipse. The projectiles are, of course, elliptical also; elongated, and somewhat pointed in front. When the shell is projected, it must follow the twist in the bore, and the rotary motion thus imparted is retained to the end of the range. The effect of this will be explained under Rifled Arms. Several Lancaster guns were employed at the siege of Sebastopol, and some of them burst. But these were scarcely fair specimens, being service 8-inch guns (with circular bore) bored to Mr. Lancaster's elliptical standard, and therefore weakened. The wrought-iron guns on his special model have given, however, more certain results. The special advantage claimed for the Lancaster gun is that it fouls less than any of the other guns in use. See Rifled Arms.

LANCASTER HERALD, one of the six heralds of England, ranking second in point of seniority. His office is said to have been instituted by Edward III., in the 34th year of his reign, when he created his son, John of Gaunt, duke of Lancaster. Henry IV.

raiscd Lancaster to the dignity of a king-at-arms. Edward IV., after reducing him back to the status of a herald, abolished his office, which was revived by Henry VII

LANCASTER SOUND, a western inlet of Baffin's bay, in lat. 74° n., and extending from 80° to 87° w. longitude. Though this opening into the polar ocean was diseovered by Baffin himself, as far baek as 1616, yet it lay virtually negleeted for more than 200 years. At length Parry, in 1819, penetrated through it into Barrow's strait, and, beyond it, to the North Georgian islands.

LANCE differed from *spear* or javelin in that it was not intended to be thrown, but to be thrust at the enemy by foree of hand, and with the impetus acquired by speed, and thus was most effeetive in the hands of a mounted soldier. Henee the lance was the favorite arm with knights for eommeneing a eombat; it was of tough ash, of considerable length, weighted at the end, and held not far from the hilt. See TOURNAMENT. In modern warfare, the lanee is a long rod of tough ash, with an iron point, and usually a eolored flag near it. It is the offensive arm of lancers (q.v.).

LANCE, GEORGE, 1802–64; b. England; studied historieal painting with Hayden, but left this braneh of art on discovering, aeeidentally, his remarkable talent for the delineation of still-life. As a painter of fruit and flowers, both in composition and as a colorist, he was unequaled among the English oil-painters of his time. He was also a remarkably sueeessful copyist, and restored, with great aeeuraey and fidelity to the manner of the master, a painting by Velasquez in the national gallery, London. His works exhibited at the royal aeademy and British institution exhibitions always attracted general attention. His *forte* lay in the wonderful brillianey of his eoloring, the exaetness of his imitation, and the taste displayed in his grouping and arrangement of aceessories.

LANCE, THE HOLY, the name applied in the Greek church to the knife with which the priest cuts the bread at eommunion. This knife is formed like a lance, designed to imitate the spear by which Christ was pierced.—2. A lanee which was given to king Henry I. of Germany by Rudolph of Burgundy, and whieh is elaimed by tradition to have been in large part made from the nails employed in Christ's erueifixion. Another narrative has it that this was the same lance employed by the Roman soldier. It became considered to be a powerful talisman, and was one of the most important insignia belonging to the German empire. In its honor, in 1354, pope Innoeent VI. instituted a speeial festival, and it was used during the crusades to raise the spirits of the soldiers of the cross.

LAN'CELET, *Amphioxus* or *Branchiostoma*, a genus of dermopterous (q.v.) fishes, of very remarkable organization, far lower than that of any other vertebrate animals, eonneeting eartilaginous fishes both with mollusks and with annelids. A few species are known, all small; one of them (*A. lanceolatus*), the first whieh was diseovered, a native of the coasts of Britain, and of Europe generally. It inhabits banks of sand, and when dug up, buries itself again in the sand with wonderful aetivity. It is at the utmost seareely more than 2 in. in length, very much eompressed, tapering to a point at each extremity, the head not notably distinct from the body. It is silvery-white and semitransparent; the skin destitute of seales. A low dorsal fin extends the whole length of the baek. The skeleton is merely rudimentary, the spine being represented by a fibrous sheath, containing a great number of transverse membraneous plates. There is no vestige of a skull, or any enlargement of the spinal eord into a brain; nor is the laneelet furnished with organs of sight or of hearing. The mouth is situated beneath that part of the body which may be regarded as the head; and is surrounded by a cartilaginous ring, in several pieces, eaeh of whieh gives off a prolongation to support *cirri*, or short filaments. The mouth eommunieates with a wide and long eavity, whieh contains the organs of respiration, and from the other extremity of whieh the alimentary canal proceeds. The laneelet does not eat or swallow, but simply imbibes its food, along with the water which supplies air for respiration. The intestine is slender and almost straight; but there is a very long cœeum. The walls of the respiratory eavity and the intestine are eovered internally with vibratile eilia. The blood is colorless. Instead of a heart, there are several elongated blood-vessels, which contract suceessively; and at the eommeneement of eaeh of the vessels eonnected with the organs of respiration there is a little eontractile bulb. The muscular system aeeords with that of the higher fishes. —The very anomalous structure of the laneelet has led to the supposition that this genus may represent a family or order onee more numerous, but belonging rather to former geologic periods than to the present.

LANCELOT, Dom CLAUDE, 1615–95; b. Paris; was regent of the monastic schools of Port Royal, teacher of mathematics and Greek, and speeially noted for the works on grammar whieh he contributed to the Port Royal publieations. He was the teaeher of Racine, the associate of Paseal, and, 1660–72, tutor to the princes de Conti. The latter part of his life was spent in seclusion, and devoted to prayer and meditation.

LANCELOT OF THE LAKE, one of the heroes of the legendary story of King Arthur and the Round Table. See ARTHUR.

LANCERS, a description of cavalry soldiers who are armed with lances. The type and perfection of lancers are the Russian Cossacks, whose long lances enable them to combat

with enemies at a distance from which they themselves take little harm. The lancers were brought into European notice by Napoleon, who greatly relied upon some Polish regiments. After the peace of 1815, the arm was adopted in the English service, but it is thought by many that the British lancer has a weapon too short to enable him to charge an infantry square with any chance of success. The regiments armed as lancers are enumerated in the article CAVALRY.

LANCET-WINDOW, a narrow window with acutely pointed arch head. This form was much used in England and Scotland during the early pointed period of Gothic architecture. Several lancet-windows are frequently grouped together, so as to produce a pleasing effect. In Scotland, the lancet-window was, like many other features of Scotch Gothic, retained to a much later period than in England.

LANCE-WOOD, a wood valuable for its great strength and elasticity. It is produced by the small tree *guatteria virgata* (natural order *anonaceæ*). Another species, *G. laurifolia*, yields the wood called white lance-wood. The latter is not much used. Lance-wood is of great value to coach-builders, by whom it is used for shafts and carriage-poles, for which it is especially fitted. The part used is the main trunk of the tree, which is very straight, and rarely more than 9 in. in diameter, with the bark on. It comes in small quantities from the West Indies, chiefly, however, from Jamaica.

LANCI'ANO (the *Anxia* or *Anxa* of Pliny, subsequently *Ancianum*), a t. of South Italy, in the province of Chieti, and capital of the district, 6 m. from the Adriatic, and 15 from Chieti. Pop. '71, 15,432. Its present site occupies three hills, of which the two most adjacent are connected by an ancient bridge of great square blocks of stone, originally dedicated to Diocletian. The central position of this town favored its being selected as a center of judicial and civil administration during both the Roman and Gothic periods, and from its extensive traffic it obtained the title of "The Emporium of the Frentani." Lanciano possesses a fine cathedral, adorned with marbles and valuable paintings; contains several large foundries, and carries on manufactures of linen goods and farinaceous pastes.

LAND, TITLES TO. See TITLE.

LANDAU, a t. and fortress of Bavaria, in the district of Rhenish Pfalz, is situated in a beautiful region on the Queich, which fills its fosse with water, 20 m. n.w. of Carlsruhe. There are here important manufactures of tobacco. The pop. in 1880 was 8,749. Landau has been the scene of important events during every great war since the 15th century. In the thirty years' war, it was taken eight times by Swedes, Spaniards, Imperialists, and French. In 1684 it was fortified by Vauban, and was considered impregnable until taken, in 1702, by the imperialists under the markgraf Ludwig of Baden.

LAND-CRAB, the popular name of all those species of crab (q.v.) which in a mature state are not aquatic. They are now erected into a family or tribe, and divided into several genera. The species are numerous, and all inhabitants of warm countries. They very much resemble the common crabs of our shores, and are remarkable as animals breathing by gills, and yet not aquatic, some of them inhabiting very dry places, where they burrow in the sand or earth; but such presence of moisture is absolutely necessary to them as to prevent the desiccation of their gills. Many, and probably all of them, deposit their spawn in water, for which purpose some of them annually migrate from considerable distances to the sea; but there is reason to suppose that some deposit their spawn in fresh water. The BLACK CRAB, or MOUNTAIN CRAB (*gecarcinus ruricola*), of the West Indies, usually resides in woods and on hills at a distance of at least one mile, often two or three miles from the sea, which, however, it regularly visits in the months of April and May, when immense numbers may be seen journeying together, moving straight on, unless obstacles quite insuperable impede their progress. Like most of the other species, this land-crab is active chiefly during the night; and except in rainy weather, it seldom leaves its burrow by day. It feeds chiefly on vegetable food. When in season, it is highly esteemed for the table, as some of the other land-crabs also are; and its spawn or roe, which before being deposited forms a bunch as large as a hen's egg, is accounted a delicacy.—A land-crab of Ceylon (*ocypode*) is so troublesome on account of the burrows which it makes in the dry soil of the equestrian promenade at Colombo, that men are kept in regular employment to fill them up.—The grass-lands of some parts of India swarm with small land-crabs, which feed on the grass or on green stalks of rice.

LANDED ESTATES COURT. See INCUMBERED ESTATES COURTS

LANDED MEN, JURY OF. In Scotch law, it is a privilege belonging to a landed proprietor, when tried for a criminal offense, to demand a jury the majority of whom are landed proprietors.

LANDED PROPERTY is not a legal, but rather a popular phrase, to denote that kind of property which consists of freehold estates in land, or, in Scotland, heritable estates. A person may have a mere chattel interest in land, such as a lease (though in Scotland even that is heritable estate), and the landed property does not in such case belong to him, but to his landlord, to whom and whose heirs the land descends forever, until

alienated. Landed property includes houses and all things called corporeal, and also some incorporeal rights connected with land.

The various ways in which this important kind of property is held, and the formalities attending its transfer, are treated of under such heads as ALLODIUM, FEE, FREEHOLD, COPYHOLD, FEOFFMENT, DEED, FEU, SASINE, CHARTER, CONVEYANCE, CONVEYANCING, SALE, TITLE, etc.

LANDER, a co. in n. Nevada, has Idaho for its n. boundary, and is drained by the head-waters of the Owyhee river, flowing n.w. into Oregon; also, centrally by the Reese river, and branches of the Humboldt river, which falls into Humboldt lake, in the next county; pop. '80, 3,624. The southern portion is extremely mountainous, with long valleys, fertile in some instances, deep cañons, and thickly wooded vales. The Quartz mountains traverse it centrally, and silver is found imbedded in the quartz rock. The Central Pacific railroad follows the valley of the Humboldt river, crossing it in the southern portion, and a branch road extends in a southerly direction from Palisade to Eureka, called the Eureka and Palisade railroad. It comprises good grazing lands, on which considerable stock is raised; gold-bearing tracts in the n., and silver and lead near Reese river. Amount of the product of bullion in '82, $1,020,000. The agricultural districts produce wheat, oats, barley, wool, and Irish potatoes; the product of butter in '70 was 20,950 lbs. It had 9 silver quartz mines, employing 127 men; capital, $1,919,100; annual product, $394,558. Value of products in 1882, $1,000,000. The Nevada Central railroad passes through the county. Assessed value real and personal estate in '80, $1,625,434.

LANDER, FREDERIC WEST, 1822–62; b. Mass.; received a military education at the Norwich, Vt., military academy, and devoted himself to railroad engineering. He superintended two of the early expeditions for the survey of the route for the Pacific railroad, both of which were arduous and dangerous, and of the latter of which he was the sole survivor. He joined the U. S. army in 1861, was appointed a brig.gen., and served with great credit, distinguishing himself as an able and daring officer. In Mar., 1862, he was stricken down by disease, and died at Paw Paw, Va. Gen. Lander married, in 1860, Jean Margaret Davenport.

LANDER, JEAN MARGARET DAVENPORT, b. Eng., 1829; entered upon the stage as a profession, and gained a high reputation in the United States as an actress of remarkable vigor and fine natural gifts, which had been cultivated to a point of rare excellence. In the character of *Camille* she was preferred by many even to Matilda Heron, the great American original in that part. She married gen. Lander in 1860, and on his death in 1862 she served as a hospital nurse, continuing in that duty until the close of the war. In 1865 she returned to the stage.

LANDER, LOUISA, b. Salem, Mass., 1835; exhibited, when quite young, a talent for modeling and sculpture; and at the age of 20 went to Rome and studied with Crawford. Besides busts of Hawthorne and others, she has produced a number of statuettes and statues in marble, which have been highly commended. Among her works are "Galatea," "Virginia Dare," and "Undine," statuettes; "Evangeline," "Ceres Mourning for Proserpine," and "A Sylph Alighting."

LANDER, RICHARD, the discoverer of the mouth of the Niger, was b. in Cornwall in 1804, and became a printer; but in 1825 went with capt. Clapperton, as his servant, to Africa, and accompanied him from the bay of Benin to Sókoto. There Clapperton died; and Lander, returning to England, published a journal containing an account of the expedition, giving proof of such qualifications, that the British government intrusted to him the prosecution of further researches concerning the course of the Niger. In 1830 he and his brother John succeeded in proving that the Quorra, or Niger, falls by many mouths into the bight of Benin. The brothers were, however, seized by the negroes, and sold to a slave-dealer, but being brought to cape Formosa, were redeemed by the master of a Liverpool ship. They returned to England in June, 1830, and published a *Journal of an Expedition to Explore the Course and Termination of the Niger* (3 vols., Lond., 1832). In 1832 they undertook a new expedition to the Niger in an iron steamboat, and bought a small island as a British trading-station. In 1833 Richard Lander, with a few companions, made a trading excursion in the delta of the Niger; but they were assailed by the natives, and Lander received a wound, of which he died at Fernando Po, Jan. 27, 1834.—JOHN LANDER, who was about three years younger than his brother Richard, was rewarded with an appointment in the customs; but died Nov. 16, 1839, from the effects of the African climate.

LANDERNEAU, a small seaport t. of the dep. of Finistère, France, 13 m. n.e. from Brest. Only a few small vessels belong to the town, although about 700 enter and clear the port annually. The harbor admits vessels of 400 tons. Pop. '76, 6,965.

LANDES (Fr. heaths), extensive tracts on the coast of the bay of Biscay, between the Gironde and the Pyrenees. Few districts in Europe are more desolate and unproductive. The part nearest the sea is more so than that which lies further inland on the rivers Adour and Midouze. The soil is in general sandy, sometimes marshy, mostly covered with nothing better than heath and dwarf shrubs, except where large plantations of fir

and cork trees were made in 1789, by direction of the minister Necker. Only a few more fertile spots yield crops of rye, maize, and millet. The inhabitants, who are called *Parens*, live in scattered villages of wretched huts, in the eastern part of the landes: they are of Gascon race, very poor and rude, but active, good-natured, and hospitable. They very generally walk on stilts in the marshy and sandy grounds. They keep bees, swine, and sheep, and also live by fishing and hunting; and have begun to derive much advantage from the plantations, in which they find occupation in charcoal-burning, cork-cutting, and collecting turpentine, resin, and pitch. They also manufacture *sabots*, or wooden shoes. The sheep of the landes are of a very wretched breed, with coarse wool.

LANDES, a maritime department of France, and one of the largest and most thinly peopled in the country, is bounded on the w. by the bay of Biscay. Area, 3,585 sq.m.; pop. '81, 301,143. The principal river is the Adour. The railway from Bordeaux to Bayonne passes through the whole length of the province from n. to south. Of the entire area of the department, 51,100 acres are in vineyards, and about 10,000,000 gallons of wine are produced annually. The department is divided into the three arrondissements, Mont-de-Marsan, St. Sever, and Dax. Capital, Mont-de-Marsan.

LANDGRAVE, or LANDGRAF. See GRAF.

LANDIT, a fair or market, said to have been established by Charlemagne about 800, and which received its name from *Lundi* (Monday), the day of the week on which it began. The actual period of the *landit* included the week beginning with the first Monday after St. Barnabas day (June 11). It was at once a trade center and a religious and popular festival. It was held both in Paris and at St. Denis, and its opening was accompanied by an imposing ceremonial of a semi-religious character, conducted by the bishop and clergy, students and officials. The *landit* was abolished in 1789, and was succeeded by the modern fair as represented at Beaucaire. The word is also used in the French to signify a small present, such as may be purchased at a fair.

LANDLORD AND TENANT. The contract by which the owner of land or houses, or the party entitled to the exclusive possession thereof, lets or hires this exclusive possession to another for a limited time, is generally called a lease, and thereby the relation of landlord and tenant is created. The party letting is called the landlord or lessor, and the party taking the lease is called the lessee or tenant. In order to let a house, the contract need not be in writing, unless the property is let for more than three years; but writing is always useful, especially if any variation is made from the usual terms. In Scotland a verbal lease is good only for one year. If nothing is said as to details beyond the amount of rent, and the length of time the lease is to last, there are certain rights understood to exist as between landlord and tenant, of which the most important are as follows in England: The tenant has a right to assign or sublet the property, if not otherwise agreed, but he still remains bound for the rent, unless the landlord accept the subtenant in his place. As a general rule, the tenant is primarily liable to bear all public impositions, whether they be parliamentary taxes or poor-rates, paving, lighting, watching, water-rates, highway-rates, county or borough rates, and church-rates. Hence, if the tenant wishes the landlord to pay these, or any of them, he must make some special agreement to that effect, for the only two rates which the landlord is bound to pay, or rather, to repay to the tenant, are the land-tax and property-tax, and the sewers-rate. As regards repairs, the burden of repairs is, at common law, thrown on the tenant; and therefore, if the landlord is to repair, he must bind himself by express contract. But the tenant is only bound for ordinary repairs, not for repairs to the fabric itself. He is bound to use the premises in a fair and reasonable manner, and to give them up at the end of the term in much the same condition, making allowance for tear and wear, and the effects of time. Strange to say, the landlord does not impliedly warrant the house to be reasonably fit for habitation, or that it will last during the existence of the lease; and it has been held that a house infested with bugs could not be thrown up by the tenant merely on that ground. Moreover, if the landlord agree to do repairs, and fail to do them, the tenant is not entitled to quit on that account, unless there is an express agreement to that effect. Where the premises consist of a farm, the tenant is bound to repair the fences; and when a tenant makes great improvements on a farm, he has no claim against the landlord for the value of such improvements, if no express agreement has been made. This state of the law was, however, altered in Ireland in 1870, by the act of 33 and 34 Vict. c. 46. As regards game, the tenant has a right to shoot the game, if he has a game license, unless he has otherwise specially agreed. The tenant of a farm has no right to the mines of coal or other mineral, unless they are already open, in which case he may take them for his own use. If nothing is specially agreed as to the time of payment of the rent, it is only due at the end of each year, but there is usually an express agreement to pay quarterly at the end of each quarter. Such quarter-days are Lady-day, Mar. 25; Midsummer-day, June 24; Michaelmas-day, Sept. 29; and Christmas-day, Dec. 25. Rent is sometimes agreed to be paid in advance, but there must be an express agreement to that effect. In case of fire, if nothing has been expressly agreed, the tenant is bound to go on paying rent as if the house actually existed; and yet there is no means of compelling the landlord to rebuild the house, and it is not even expressly settled whether in that case the tenant can get quit of his lease by offering to abandon it. A landlord is privileged above all other creditors as to the way in which he recovers his

rent, for he need not, like other creditors, go to the expense and delay of bringing an action, but he can make a distress on the premises, i.e., seize at once as much furniture or goods as he finds there, to pay the rent in arrear; and he can recover six years' rent in this way. And it is immaterial whether the goods so seized belong to the tenant or not, except the goods are those of a lodger, who has paid his rent. Hence, though the house is sublet to another tenant whose goods are there, or even if the furniture is hired, and though the landlord knew this, yet he may seize it and pay himself; the only exception being made in favor of trade, as where the goods have been sent to a tailor or weaver to be made up. This privilege of distress, however, though most valuable to the landlord, is subject to this qualification: it cannot be resorted to till after the rent is due. Hence, if the tenant is bound only to pay his rent at the end of the year, he may on the last day remove all his goods and furniture, and so put them beyond the reach of the landlord's distress. It is true he does not get quit of the debt, for the landlord may then sue him, like other creditors, but he has no privilege. On the other hand, though the landlord cannot distrain till after the rent is due, still it may happen that, even after rent is due, the tenant may yet manage to clandestinely remove the goods, the rule being, at common law, that if once the goods be taken off the premises, the landlord's security is gone. In such cases, the landlord is entitled by an express statute to follow the goods so fraudulently removed to avoid a distress, provided he do so within thirty days; and he can then seize them, in whose hands soever they may be, and distrain them, as if they were still on his premises. Another qualification of the landlord's right of distress is of some importance: he cannot break open the outer-door of the house, or force his way in, though he may use stratagem to get in peaceably, and when once in, he can effect his purpose by seizing a tabie in the name of other goods, and leaving his broker or bailiff in possession. It is generally the bailiff or agent of the landlord who makes the distress, but it is the same thing. Hence it often happens that a tenant who is vigilant, and not to be surprised, may for a long time effectually keep his landlord at bay, as far as the power of distress is concerned, for his house is his castle to this extent. Another advantage a landlord has as a creditor is, that if his tenant is indebted to third parties, who obtain judgment against such tenant, and put an execution in the house, i.e., seize, under the authority of the judgment, the tenant's goods, or if the tenant become bankrupt, the landlord is entitled to be first paid out of the proceeds of the furniture or goods, one year's rent if in arrear; if there is more rent due, then he must take the same remedy as other creditors. The mode of terminating a lease is by the time expiring, or by a notice to quit. In the ordinary tenancies of houses, which are called tenancies from year to year, the rule is, if nothing is agreed to the contrary, that either party can put an end to the tenancy by giving a half-year's notice at such a time that the lease will end at the same time of the year as the tenancy commenced. Thus, if the tenant entered on May 1, 1874, then he can give a half-year's notice to quit on May 1, 1875, 1876, or any subsequent year. Sometimes the parties agree that only a quarter's notice will suffice, and that at any of the usual quarter-days of the year. Sometimes the tenant, after giving or receiving notice, refuses to remove, and holds over; in which case, if the landlord chooses, he may accept him, and thereby the tenancy is renewed from year to year; or he may insist on the notice, in which case he requires to bring an action of ejectment to turn the tenant out; and in such cases the landlord is entitled to demand double rent or double value, until he gets back the possession. A lodger has now a better position than a tenant to the party from whom he hires the lodgings. See LODGINGS.

In Scotland the law on the subject of landlord and tenant differs in a great variety of details from the law of England, as above stated, but it will be necessary only to notice the leading points. There is no implied right in the tenant to assign and sublet an ordinary lease of an agricultural subject, such as a farm; but subletting and assigning are implied rights of the tenant of an urban property. If a tenant take a farm or house, he is impliedly bound to stock the one and furnish the other. If a house is let, the landlord impliedly warrants that it is in a fit state of repair; and if the landlord is bound to repair, the tenant may either do the repairs at the landlord's expense, or retain the rent till the repairs are done. Usually, the landlord puts the farm-buildings, fences, roadways, etc., in thorough repair at entry of the tenant, who is bound to leave the whole, at the end of the lease, in good condition, except as regards deterioration from ordinary tear and wear; by which arrangement all disputes, such as occur in Ireland, are avoided. The tenant has no claim for improvements, unless when his lease is abruptly terminated, and this is a rare occurrence. See LEASE. The tenant of a farm is, in the absence of special agreement, not entitled to the game. Rent is payable twice a year, if not otherwise agreed. In case of accidental fire, the tenant is no longer bound to pay rent if the destruction is complete, and otherwise is bound only *pro tanto*. A landlord has a hypothec, and can sequestrate (resembling the power of distress in England) the tenant's goods for rent which is current, but not yet due. But the landlord cannot in general sequestrate a stranger's goods, unless in town-houses, and even then subject to qualification; and he cannot take a subtenant's goods, if the subtenant has paid the rent to the tenant. The landlord's hypothec or security over the goods follows the goods wherever they go; but in case of farms this right was curtailed, as regards crops sold or removed, in various particulars by the hypothec amendment (Scotland) act, 1867, 30 and 31 Vict. c. 42. The notice to quit, or warning, is sufficient if given 40

days before the term of removal. But in Edinburgh the local custom is to give a three months' warning at Candlemas. Rent cannot be retained for an illiquid or unconstituted claim. If no notice is given 40 days before the termination of a lease that advantage is to be taken of its close, the agreement is held to be removed for another year by tacit relocation. See Paterson's *Compendium of English and Scotch Law*, pp. 127–149.

LANDLORD AND TENANT (*ante*). The relation of landlord and tenant may be inferred from the circumstances of the parties as well as created by express contract. The payment of rent is *primâ facie*, but not conclusive evidence of such implied contract, and such contract will arise generally where one person occupies another's lands or tenements by the consent of the owner. We will consider, first, the rights and obligations of the landlord; secondly, the right and obligations of the tenant. These begin with the date of the lease, unless some other date has been fixed, or, in the absence of a written lease, with the tenant's entrance into possession.

The landlord has a right to receive the rent, to go upon the premises to collect rent, to prevent waste, and, upon notice given to the tenant, to see if waste has been committed. He can maintain an action only for injuries to the reversion, i.e., his estate remaining after the expiration of the lease. The landlord is under obligation to maintain the tenant in possession of the leased premises, i.e., to protect the tenant from being ousted by any person claiming under a title superior to that of the landlord, and not to disturb the tenant's occupation by any act of his own, as, for instance, the creation of a nuisance. The landlord is also charged with the obligation, in the absence of express provision to the contrary in the lease, of paying all taxes to which the premises are subject, and of discharging the interest upon such mortgage or mortgages as they may be incumbered with; and in case any liability of this sort which the landlord is chargeable with is satisfied by the tenant for his own protection, he is entitled to repayment by the landlord, or to withhold the rent to the extent of the liability so assumed. In limitation of the landlord's obligations, it should be said that he is not responsible where the tenant is dispossessed by a person who has no title, or where the tenant's interest is injured by the acts of third persons. Nor is the landlord liable to make repairs, or for expenses incurred by the tenant in making repairs, or to restore the buildings upon the premises when they have been burned down.

The tenant is under obligation to pay rent, and, if he have stipulated to pay a fixed sum for a certain term, he is not excused by the destruction of the premises, or by any injury to his interest otherwise than by act of the landlord. The tenant must restore the premises to the landlord at the expiration of the tenancy in as good order as he received them, with allowance for necessary wear and tear. He is liable only for ordinary repairs, such as of fences, doors, windows, etc. The rights and liabilities of a tenant in possession are the same, substantially, as against third persons, as if he were actual owner. A tenancy may be dissolved by the surrender of the lease to the landlord by the tenant, or forfeiture of the lease by a breach of a covenant contained in it, such as the covenant to pay rent, not to commit waste, etc.; in case of a tenancy for life or for years, it is dissolved by the expiration of the term for which it was limited, without giving notice to quit. But such notice, in writing, must be given to a tenant who holds from year to year or at will. At common law six months' notice was required, but in most of the United States much less time is allowed.

Upon the expiration of the tenancy the landlord has a right to re-enter upon the premises, and, in case of the tenant's holding over, may recover possession by the old common-law action of ejectment, which in this country has been largely superseded by summary proceedings under the statutes of the different states. A lease may be either verbal or by deed under seal. By the statute of frauds a lease for a term of over three years must be in writing, and in some states a verbal lease is good for only one year. Any person not under legal disability may make a valid lease, provided the lessor at the time of making the lease have possession of the premises demised. When the landlord permits the tenant to remain upon the premises after the expiration of the term, a tenancy at will is created, which will be terminated by the landlord's taking rent from another party, or by some act by the landlord and other parties indicating that the relation of landlord and tenant exists between them.

LANDLORD'S HYPOTHEC, in Scotch law, means the lien or security for the landlord's rent which attaches upon the tenant's goods. See LANDLORD AND TENANT.

LANDON, LETITIA ELIZABETH, an English poetess—better known by her initials L. E. L.—was b. in London in 1802. Her childhood was spent in the house of a relative in Hertfordshire. In 1820 her first poems appeared in the *Literary Gazette*, and attracted considerable attention. On the death of her father, she devoted her entire attention to literature, earning both fame and money. She published several volumes of verse, the most widely read and admired of which was the *Improvisatrice*, and three novels, which have long since been deserted by the world of readers. On June 7, 1838, she married George Maclean, esq., governor of Cape Coast Castle, and was found dead in her new house on Oct. 15, 1839. It is understood that for the alleviation of spasms, with which she was occasionally visited, she was in the habit of taking small doses of prussic acid, and her death is supposed to have been caused by an overdose. There is

no reason to suppose that her death was other than accidental. In 1841 Mr. Laman Blanchard published her life and literary remains, in two vols.

L. E. L. might be called a sort of female Byron, if Byron had written nothing but the *Corsair* and *Lara*. Her poems are altogether high-flown and romantic, but they have a certain musical impulse which is pleasing, and which gave them all the charm they ever possessed.

LANDOR, Walter Savage, son of Walter Landor and of Elizabeth Savage, was b. at Ipsley Court, Warwickshire, in 1775. He was educated at Rugby, and at Trinity college, Oxford, quitting the university without taking a degree. He succeeded to the family estates on the death of his father. In 1808 he raised a body of men at his own expense, and joined the Spanish patriots under Blake. He was made a col. in the service of Spain, but resigned his commission on the restoration of king Ferdinand. In 1811 he married Miss Julia Thuillier, of Bath. After his marriage he resided first at Tours, then at Florence, where he bought an estate. He first became known as the author of *Count Julian*, which was followed by a poem called *Gebir*. In 1820 appeared *Idyllia Heroica* (in Latin), and in 1824–29 his *Imaginary Conversations of Literary Men and Statesmen* (5 vols.). Landor was a thorough classical scholar, and his Greek and Roman characters speak as we should expect the ancient heroes to have spoken. He is greater as a prose writer than as a poet; but, according to Emerson, who visited him in 1833, nature meant him rather for action than for literature. "He has," says Emerson, "an English appetite for action and heroes." In 1836 he published *Letters of a Conservative;* in the same year, a *Satire on Satirists, and Admonition to Detractors;* in 1837, *The Pentameron and Pentalogue;* in 1847, *The Hellenics;* in 1848, *Imaginary Conversations of King Carlo Alberto and the Duchess Belgioioso on the Affairs and Prospects of Italy;* in 1851, *Popery, British and Foreign;* in 1853, *Last Fruit off an Old Tree;* in 1854, *Letters of an American.* He died at Florence, Sept., 1864. His *Life and Works* were published in 1876, in 8 vols., the first volume being a biography by John Foster.

LANDOUR', a sanitary station in British India, on the s. border of the protected state of Gurhwal (q.v.), at an elevation of 7,579 ft. above the sea. On ascending to this point from the plains, the thermometer has been known to fall from 90° to 52° F. in the course of two or three hours. Even in June the temperature rarely rises to 80°; while in Jan. it averages only about 53°. Much has been done to render the place available for invalids. Barracks have been erected, as also a post-office, a church, a hospital, a hotel, a library, and many private houses. Landour is 1028 m. to the n.w. of Calcutta. This sanitary station is all the more accessible from its proximity to both the great rivers of the neighborhood, the Jumna and the Ganges.

LAND-RAIL. See Crake.

LANDRAILS, in point of law, are protected by the game-laws from illegal trespassers, though not included in the definition of "game." See Game, Poachers.

LANDS'BERG, a t. of Prussia, in the province of Brandenburg, is situated in a pleasant and fruitful district on the Warthe, 40 m. n.e. of Frankfort. Its corn and wool markets are important; weaving, tanning, distilling, and machine-making are carried on. Pop. '80, 23,612.

LANDSCAPE GARDENING, the art of laying out grounds in order to beauty and pleasure, which may fairly claim to be reckoned among the fine arts. It is chiefly practiced either in connection with the residences of the opulent, or in the public parks and pleasure-grounds of cities. The happiest results are indeed obtained where the mere purpose of pleasing is not too much obtruded on attention, but where it is seen to harmonize with some other design.

Where the general aspect of a country is wild, and has been little modified by cultivation, inclosures, and other works of man, those scenes are felt to be most pleasing which exhibit his progress and triumph. Thus, when pleasure-grounds first began to be laid out, they exhibited only geometric forms; and alleys, avenues, and parterres did not seem artificial enough to give delight without buildings of various kinds, terraces, mounds, artificial hills, lakes, and streams, close-clipped hedges, and trees or shrubs trimmed by *topiarian* art into fantastic shapes, such as figures of animals, vases, and the like. The art of the *topiarius* or *pleacher*—dating from the Augustan age in Rome—is now no longer in repute. In districts where the general scene exhibits a succession of rectangular fields, and where everything has evidently been reduced to a condition subservient to utility, a greater irregularity gives pleasure, and the eye loves to rest on any portion of the landscape which seems to exhibit the original beauties of nature. The landscape gardener, however, must not attempt an exact imitation of nature, or to reduce everything to a state of primitive wildness. Like the painter, he must seek to exhibit nature idealized. The introduction of water is seldom successful; the mere landscape gardener's lake or cascade is too obviously artificial. Where water is within view, it is a chief object of the landscape gardener to arrange everything so that the view of it may be enjoyed from the windows of the mansion, or from the principal walks. Much care is given to the disposal of wood, in masses, groups, and single trees. Belts and clumps, which were much in vogue in the latter part of the 18th c., are now comparatively seldom planted.

The style of landscape gardening in which regular forms prevail is called the *geometric;* and the opposite style, from having been first extensively practiced in England, in which country, indeed, it may be said to have originated, is known as the *English.* On the continent of Europe, a pleasure-ground laid out with winding and irregular walks, and scattered trees or groups of trees and shrubs, is called an *English garden.* But many of the continental English gardens are rather caricatures of the true English style than illustrations of it.

The taste of the present age rejects the grottoes, temples, statues, monuments, fountains, jets-d'eau, etc., with which it was once the fashion to fill pleasure-grounds, or admits only of their sparing introduction.

In the laying out of grounds, whether on a large or a small scale, it is of great importance that the trees and shrubs be well chosen, and the different kinds well grouped.

LANDSCAPE GARDENING (*ante*). The word landscape implies a considerable range of perspective over nature, embracing gradations from a foreground to a middle and a far distance. A piece of decorated ground, or park, which has not such a view cannot be considered a landscape garden. There is an obvious impropriety in the conjunction of the words landscape and garden, in their use when we mean simply the English or natural style in *decorative gardening.* The latter words cover the whole field, and should be substituted for landscape gardening. To garden, to lay out and plant, and make or mold such an extent of view as to create grand or extensive landscapes, is preposterous. As well seek to make artificial skies or oceans. Great and beautiful landscapes are without the pale of gardening arts; but decorative gardening may aid in producing charming bits of perspective in vegetation, made more pictorial by artful adaptations of the various elements of beauty which the garden artist may have means to employ, and thus make exquisite miniature or condensed landscapes. The term decorative gardening, however, even in that case, is by far the truer name to apply to the art. As used in England, the term landscape-gardening refers to the natural and graceful, in contradistinction to the formal and geometric, styles of gardening. The English, having originated and carried the former style to a perfection never before attained, the word landscape, which attached to that variety of decorated grounds, has served to mislead people into the idea that a good imitation of a piece of primitive nature is a refined piece of "landscape gardening." The charm of primitive nature is the absence of all evidence of art. The charm of decorative gardening is in the variety and perfection of the art employed in improving, arranging, and setting pliant vegetation: so that the beautiful foliage and bloom of its summer growth shall be exhibited to the greatest perfection from the walls or roads made to traverse the ground; so as to make the most charming setting for the architecture and sculpture that may be needed for the comfort or delight of those who are to use the place, or to make a lovely foreground for a distant view. All the hints which a living observer of natural scenery may receive from a close observation of the effects produced, the play of light and shade and color, by the varied juxtapositions of ground surfaces, trees, grass, roads, and water, to enable him to reproduce on a limited scale the most pleasing effects he may see, and to avoid those features in the primitive picture which do not contribute to its pleasing effect—all these hints from nature constitute the elements of *landscape* gardening. But in order to be an art it must be associated with the evidence of human effort. A lovely bit of wild landscape, if it have but a path to a summer-house, or any other evidence that its beauty is dedicated to use as beauty, becomes a bit of landscape art by such evidence of its appropriation. And the added features of art, as paths, walks, flowers, and lawn, that will heighten the beauty and the interest of that pretty scene, without marring its harmony, constitute the gardening art. As wealth and taste increase, the art naturally tends to great use of architectural accompaniments; as decorated steps, terraces, pavilions, garden-houses, vases, fountains, bridges, etc., until the constructive arts are the principal, and nature's growths only *their* decoration. Then, it is architectural gardening; none the less decorative, but certainly not landscape gardening. The formal park at Versailles, with its monotony of geometric angles, its breadth of barren gravel, its wealth of architectural and sculptural decorations, is a type of architectural and formal gardening on a great park scale. Roman and Italian villa gardens for 2,000 years have been examples of the more domestic forms of architectural gardening. Compared with the simple use of nature's materials in the English or "natural" style, the former are vastly more expensive. The latter is, therefore, to be recommended, for the reason that at limited cost very charming effects may be produced with grass, trees, and flowers alone; and it is far better to succeed perfectly with the use of these only, than to attempt a style beyond most men's reach. But when both taste and the means to gratify it are joined, much higher examples of decorative gardening may be produced by working after the Italian school.

The public parks of the United States (see Parks) now exhibit some of the best models of landscape gardening on a great scale. The cemeteries of nearly all American cities are also designed to produce pleasing effects in landscape gardening; and as far as such effects can be produced where numberless monumental tributes to the dead must necessarily be conspicuous features of the scene, they are the most beautiful art.

works of their kind in the world. In private grounds the development of taste in the United States, in what is called landscape gardening, but should be called decorative gardening merely, has been rapid; and although architectural gardening has received little of the study which its capabilities invite, the lovely surroundings of grass, trees, and flowers of American homes marks an advanced taste in the arts of gardening. The principal American works on this subject are A. J. Downing's "Treatise on Landscape Gardening," published 30 years ago, and a work by Weidemeyer on decorative gardening on a scale adapted to suburban homes, F. J. Scott's treatise entitled "The Art of Beautifying Home Grounds." London's "Encyclopedia of Gardening" (English) is by far the most complete work of the kind extant; of greatest value to those who may intend to practice landscape gardening as a profession, but more particularly adapted to England.

LANDS-CLAUSES ACT, a statute passed in 1845, containing a code of regulations generally inserted in all local acts where a power is given to take compulsorily a man's land for the purposes of public improvements. As no man can be compelled otherwise to sell his property, a statutory power to compel him is necessary in all cases where a public undertaking, such as a railway, harbor, etc., requires it. A statute, 8 Vict. c. 18, accordingly, with the above title, was passed for England, and 8 Vict. c. 19 for Scotland, each containing detailed provisions as to the mode of settling the price to be given in such cases, etc.

LANDSEER, Charles, 1799–1879; b. England; elder brother of sir Edwin. Received his first instructions in art from his father, and from the celebrated historical painter, B. R. Haydon, and entered the school of the royal academy in 1816. Four years later he accompanied lord Stuart de Rothsay on a mission to Brazil, where he made a large number of drawings and sketches for Don Pedro I. He made his first exhibition at the royal academy in 1828; in 1837 was elected an associate; and in 1845 an academician. In 1851 he became keeper of the academy, and held that office until 1873, when he retired with a pension of the amount of his salary. Among his paintings, the most important are "Pillaging of a Jew's House;" "The Temptation of Andrew Marvell;" "The Departure of Charles II. from Bentley;" and "The Eve of the Battle of Edgehill." One of his paintings found a place in the Vernon gallery, and others gained art union prizes.

LANDSEER, Sir Edwin, r.a., an English painter, son of John Landseer, an eminent engraver, was born in London in 1802, and was carefully trained by his father, who used to take him out, when only a child, to Hampstead Heath, and accustom him to sketch animals from life. The first work of Landseer's that brought him prominently before the public was "Dogs Fighting," exhibited in 1819. It was succeeded by the "Dogs of St. Gothard" (1819), the popularity of which was very great. The scene of several of his finest pictures is laid in the Highlands of Scotland. For upwards of thirty years, every London exhibition has witnessed his success. In 1827 he was elected a r.a., and in 1850 he was knighted. Among his most celebrated achievements are: "The Return from Deer-stalking," "The Illicit Whisky-still," "High Life," "Low Life," "Poachers Deer-stalking," "Bolton Abbey in the Olden Time," "The Drover's Departure," "Return from Hawking," "The Old Shepherd's Chief Mourner," "Dignity and Impudence," "Peace," "War," "Stag at Bay," "The Drive—Shooting Deer on the Pass," "The Random Shot," "Night," "Morning," "The Children of the Mist," "Saved," "Highland Nurses," "Deer-stalking," and "Flood in the Highlands" (1861), and more recently, "Windsor Park," "Squirrels Cracking Nuts," and "Man Proposes, but God Disposes." Landseer was elected president of the royal academy in 1866, but declined the honor. He died Oct. 1, 1873. Landseer is reckoned the most superb animal-painter of his time. Most of his pictures have been engraved.—Two brothers of Landseer, Charles and Thomas, are also artists. Thomas is one of the best living engravers in England.

LANDSEER, John, 1789–1852, b. Lincoln, Eng.; now best known as the father of sir Edwin Landseer, whose paintings he was first to engrave and make widely known. At 24 he had executed some admirable plates. In 1806 he opened a school of engraving, became an associate of the royal academy the year after, and devoted much time to archæology. Among his engravings are the plates in Bower's History of England; in sir Thomas Moore's Views in Scotland; a portrait of Nelson; "Saint John" after Benj. West; "The Rat on Watch;" "The Dogs of Mt. St. Bernard," after a painting by Edwin; and plates for the Stafford gallery, an elaborate quarto in 4 vols., 1818. He is author of a descriptive catalogue of the early pictures of the national academy in London, which abounds in lively narratives and humor; of a memoir on the sculptured stones from Babylon in vol. xviiith of the *Archæologica;* and of Sabian Researches.

LANDSEER, Thomas, 1794–66, b. London; older brother of sir Edwin, and engaged most of his life engraving on steel from the latter's superb animal pictures. His engravings are remarkable reproductions, often full-sized copies, of the original paintings; and give the life, spirit, and atmosphere of the paintings of sir Edwin as really as the paintings themselves. Among his other works is the engraving of Rosa Bonheur's "Marché aux Cheveaux." The French national library contains an album of his designs

and sketches, which indicate high talent. He was author of the *Life and Letters* of William Bewick.

LAND'S END. See CORNWALL.

LANDSFELDT, COUNTESS OF. See LOLA MONTEZ.

LANDS'HUT, an ancient and picturesque German town, of Upper Bavaria, is situated in a pleasant and fertile district on the Isar, 39 m. n.e. of Munich. Its streets are rich in quaint old gables, and there are numerous towers; that of St. Martin's church (a Gothic building, dating from 1450) is 420 English ft. in height. Landshut contains 36 breweries, and has manufactures of woolen cloth, leather, hosiery, and tobacco. In 1826 the university, which was removed hither from Ingolstadt in 1800, was transferred to Munich. The castle of Trausnitz, long the residence of the dukes of Bavaria, is supposed to have been originally a Roman station. During the thirty years' war, and the war of the Austrian succession, Landshut was an important fortress, and the scene of many conflicts. Pop. '80, 17,225.

LANDS'HUT, or LANDESHUT, a t. about 50 m. from Breslau, in Silesia, Prussia; pop. '80, 5,817. An important linen trade is carried on by the inhabitants, but the place is not otherwise remarkable in a commercial sense. Here was fought in 1760 an important battle between the Prussians, and the Austrians under gen. Laudon, in which the latter were successful.

LANDS'KRONA, a fortified seaport t. of Sweden, on a tongue of land which projects into the sound, 18 m. n.n.e. from Copenhagen. The harbor is very good. Shipbuilding is carried on. Corn, fish, tar, pitch, timber, and alum are the principal exports. Pop. '78, 9,219.

LANDSLIPS, large portions of land which from some cause have become detached from their original position, and slid down to a lower level. They are especially common in volcanic districts, where the trembling of the earth that frequently accompanies the eruption of a volcano is sufficient to split off large portions of mountains, which slide down to the plains below. Water is another great agent in producing landslips. It operates in various ways. The most common method is when water insinuates itself into minute cracks, which are widened and deepened by its freezing in winter. When the fissure becomes sufficiently deep, on the melting of the ice, a landslip is produced. Sometimes, when the strata are very much inclined, and rest on a bed susceptible of absorbing water, and becoming slippery, the superincumbent mass slides over it to a lower level. This took place on a large scale in Dorsetshire between Lyme and Axminster, in 1839, an unusually wet season, in which the strata had become saturated with moisture. A mass of chalk and greensand here slid over the slippery surface of a bed of liassic clay down into the sea, leaving a rent three-quarters of a mile long, 240 ft. wide, and 150 ft. deep. Of the same kind was the slip of the Rossberg, in Switzerland (see GOLDAU). Landslips of a different kind have been produced in peat-mosses, which becoming by heavy rains thoroughly saturated with water, have burst their natural boundaries, and discharged themselves on a lower level. The most remarkable case on record is that of the Solway Moss, which, in 1772, owing to greater rains than had fallen for nearly two centuries, spread itself in a slowly rolling, resistless deluge of black mud over 400 acres of cultivated fields, and to such a depth as almost to cover several houses, while it reached the roof of others.

LANDSMAN, a term applied on board ship to a sailor who has never been at sea before. The word is gradually becoming obsolete, and is supplied in the royal navy by the expression "ordinary seamen of the 2d class."

LANDSTAD, MAGNUS BROSTRUP, 1802–80; a priest in the national church of Norway, and distinguished for his contributions to the literature of his country. He has been regarded as one of the twelve great Norwegian poets of this century. He published a hymn-book, which in 1869 was authorized to be used in the public religious services, and is now used in nearly every parish in Norway. In 1853 he published his Norwegian ballads, which, with notes, fill more than 900 octavo pages.

LANDSTURM. See LANDWEHR, *ante*.

LAND-SURVEYING, or the measurement of the area of a portion, whether small or large, of the earth's surface, is an important application of mathematics, and involves a thorough acquaintance with geometry, trigonometry, and the theory and use of the instruments employed for the determination of angles. Fields or portions of ground of small extent are measured easily and with sufficient accuracy by a chain (for distances), and a box-compass or cross-staff (for angles). For larger areas, the use of the surveyor's table is requisite; and for those of still greater extent, in which the greatest accuracy is requisite in the determination of the angles, the astrolabe, theodolite, sextant, circle, reflector, micrometer, etc., are used. The surface to be measured is divided into triangles, which are separately measured and calculated; but when a large extent is included in the measurement, it is not enough to proceed from one triangle to another, in which way an error at the outset may be propagated with continual increase; but a base line, as long as circumstances admit of, must, in the first instance, be accurately measured, upon which, by means of the measurement of angles, all the subsequent calculations are

made to depend, and lines subsequently measured are only intended to be corrective of the results obtained by calculation. When the extent of surface is still greater, as when a whole country is to be measured, points here and there are astronomically determined, their meridians are accurately laid down, and a complicated system of triangles is employed to insure accuracy. This is called *trianguiation.*

LAND-TAX, a tax imposed upon land and houses for purposes of revenue, in lieu of the ancient subsidies, scutages, talliages, tenths, fifteenths, and such occasional taxes. From a very early period to the middle of the 17th c., parliament had provided for the extraordinary necessities of the government chiefly by granting subsidies, which were raised by an impost on the people in respect of their reputed estates. Landed property was the chief subject of taxation, and was assessed nominally at 4s. in the pound. But this assessment was made in such a way that it did not rise with the value of land, but dwindled away to about 2d. in the pound. The Long parliament devised a more efficient plan by fixing the sum to be raised, and then distributing it among counties according to their supposed wealth, leaving them to raise it by a rate. In 1692 a new valuation of lands was made, and it was found that a tax of 1s. per pound would yield half a million. In war this was raised to 4s. In 1798 the parliament relieved itself of the trouble of every year passing an act, and a general act was passed, permanently fixing the land-tax at 4s. in the pound. This act (38 Geo. III. c. 60) enabled the landlord to redeem the tax, and accordingly, since that time, a great part of it has been redeemed, only about one million being unredeemed. Though the act of 1798 directed the tax to be assessed and collected with impartiality, this provision was not carried out, but the old valuation of 1698 was acted on, and in modern times the greatest possible inequality prevails. If the tax is in arrear, the tenant is liable to a distress; but the tenant may deduct it from the next rent he pays. The tax, though nominally chargeable on the landlord, falls neither on the landlord nor the tenant, but on the beneficial proprietor, as distinguished from the tenant at rack-rent; for if the tenant has sublet, and has a beneficial interest, he pays *pro tanto* the tax, charging the residue on the landlord. The proportion of land-tax fixed on Scotland was £47,954, and a proportion was fixed on each county, the commissioners having power to amend the valuation. The collection and management of the tax was given to the commissioners of taxes by the statute 3 and 4 Will. IV. c. 13.

LAND-TRANSPORT CORPS. See MILITARY TRAIN.

LAND'WEHR (land-defense), a military force in several of the German states, somewhat corresponding to the militia (q.v.) of Great Britain. It is not always retained under arms. During peace, its members spend most of their time in civil pursuits, and are called out for military service only in times of war or of commotion—care being taken, however, that they are sufficiently exercised to make them ready for such service when necessary. The name Landwehr was first applied to the Tyrolese, who rose against the French; and in 1805 a similar force was raised in the other German provinces of Austria, which, however, the emperor has recently abolished. By far the most elaborate and complete system of land-defense was the Prussian, which was called into existence in 1813, when all Germany rose against Napoleon. As early, indeed, as 1806, or earlier, marshal Knesebeck, then a major in the Prussian army, had proposed such a thing; but it was not till the opening of the campaign of 1813 that the Prussian Landwehr was organized according to Scharnhorst's plan by a royal edict, dated Mar. 17. At first, it was designed solely as a land-defense, properly so called, and not, what is now the case, as an integral part of the regular army. It was called out in two separate levies, the first comprising all men from 26 to 32, and the second those from 32 to 39. The old men up to 60 belonged to the *landsturm,* which was called out only for the defense of house and hearth.

After the second peace of Paris appeared the *Landwehrordnung* (Landwehr-regulation) of April 21, 1815, according to which the country was divided into 104 districts, each of which had to furnish a battalion of Landwehr. To every battalion of Landwehr was attached a squadron of uhlans; three battalions formed a regiment; two regiments, a Landwehr brigade, which, along with the brigades of cavalry and infantry, was placed under a general of division. By the constitution of April, 1871, the Prussian obligation to serve in the army was extended to the whole German empire. Every German capable of bearing arms, after serving in the standing army for seven years, has to enter the Landwehr, and remain in it for other five years.

LANE, a co. in w. Kansas, formed of extensive prairies and watered by Walnut creek, North Fork, and South Fork, affluents of the Arkansas river; 650 sq. miles. Pop. '80, 633.

LANE, a co. in w. Oregon, having for its n. boundary a branch of the Willamette river, called McKenzie's Fork; the Cascade range of mountains for its e. border, and the Calapooya mountains extending along the s. boundary line to where the Siuslaw river rises and flows w. to the Pacific ocean, which forms its w. boundary; 3,550 s.qm.; pop. '80, 9,411. The Willamette valley formed by the river of that name lies along the e. section for 200 m., and is from 20 to 30 m. wide; for two-thirds of the year the river is navigable by steamboats as far as Eugene City, 200 m. from its mouth. The surface is uneven, varied by hills, valleys, and dense forests of fir and pine. The scenery is mag-

nificent. It embraces three peaks of the Cascade range, Mt. Hood, 11,934 ft. above the level of the sea, Mt. Jefferson, and Mt. Pitt. Igneous rocks are found in the mountainous district; but in the valleys the soil is very fertile, and productive of grain, honey, and tobacco. Product of butter in '70, 155,214 lbs. A large number of sheep and swine are raised, the country furnishing good grazing pastures, and wool is a staple product. Value of all live stock in '70, $666,521; cash value of farms in '70, $2,499,297. It has one flour-mill and three saw-mills. Value of home manufactures, $1,390. It has 49 manufacturing establishments employing 80 hands; capital, $227,650; annual product, $336,570. It is intersected longitudinally by the Oregon and California railroad. Value of real and personal estate in '70, $2,100,000. Seat of justice, Eugene City.

LANE, Edward William, ph.d., 1801–76; b. England; prepared for the church, but visited Egypt in 1825, and continued to travel and reside in that country till 1842. Having devoted himself to the study of the manners and customs of the Egyptians, he published a popular work on that subject in 1836; and, five years later, a new translation of the *Arabian Nights*, 1841. Other works from his pen are *Selections from the Kur-an*, 1843; and *Arabian Tales and Anecdotes*, 1845. He labored for many years at the compilation of an Arabic-English dictionary, which is still incomplete (1880), though six parts of it have been published. He left behind him at his death, in 1876, the manuscript complete for the seventh and eighth volumes of his great work. Mr. Lane's fluency in the Arabic language was extraordinary, and his acquaintance with the customs of the Arabs gave him facilities for acquiring knowledge which no other English writer has possessed.

LANE, Henry S. See page 894.

LANE, James Henry, 1814–66; b. Lawrenceburg, Ind.; educated for the legal profession, and admitted to the bar. On the outbreak of the Mexican war he volunteered as a private in the 3d Ind. regiment, became its col., and at Buena Vista, where he was in command of a brigade, distinguished himself by his gallantry. Returning to Indiana in 1848, he was elected lieut.gov., and in 1853 a member of congress. He voted for the repeal of the Missouri compromise, and on the breaking out of the Kansas political troubles, removed to that state, and was a prominent member and chairman of the executive committee of the Topeka convention. He was made president of the Leavenworth constitutional convention of 1857, and on the outbreak of actual hostilities between the "free-state" and "border-ruffian" elements, so-called, was put in chief command of the former. Being elected U. S. senator by the Topeka legislature, his election was held by congress to be invalid, and he was indicted for high-treason. He became senator, however, in 1861, and the same year entered the volunteer service, was named brig.gen., and being in command of a Kansas brigade, defeated the confederates in several battles. He was in Lawrence, Kan., at the time of the Quantrell massacre, and narrowly escaped with his life. He retained his seat in the senate during the war, and in 1865 was re-elected. But in the following year he was attacked with paralysis, and during temporary aberration of mind, committed suicide.

LANE, Joseph, b. N. C., 1801; removed to Indiana when 14 years old, and was a clerk in a store. He interested himself in local politics, and was several times elected to the state legislature. He fought in the Mexican war with distinction, was col. 2d Ind. vols., promoted to brigadier and brevet maj.gen. for gallantry, and was wounded at Buena Vista. In 1848 he was appointed governor of Oregon territory, and was sent from there delegate to congress in 1851, and to the U. S. senate in 1859. In 1860 he was nominated for vice-president on the ticket with John C. Breckenridge, by the democratic convention at Baltimore. He d. 1881.

LANFRANC, the most eminent of the foreign churchmen who rose to distinction in the mediæval church of England, was born of a noble family at Pavia, in 1005, and educated, partly at Pavia, partly at Bologna, for the profession of the law. For a time he followed the profession of an advocate at Pavia; but in the hope of greater distinction, he removed to France, and founded at Avranches a school of law, which soon became one of the most popular in France. Having been waylaid and all but murdered by robbers during one of his journeys to Rouen, he was carried to the monastery of Bec, where he was treated with much tenderness; and the deep religious impressions there received determined him to abandon the world and become himself a monk. He was soon (1041) chosen prior of the monastery; and his reputation for piety, as well as the fame for theological learning which he acquired, especially in his controversy on the Eucharist with Berengar, led to his translation in 1062 to the still more important monastery of St. Stephen, at Caen, recently founded by William, duke of Normandy. Having enjoyed the confidence of that prince for many years, he was selected by him, after the conquest of England, to fill the primatial see of Canterbury, and he was induced with much reluctance to accept it in 1070. Having once, however, undertaken the charge, he entered zealously into the policy of his sovereign; and under his spiritual rule the church of England received as strong an infusion of the Norman element as was forced upon the political system of England by the iron hand of the conqueror. Lanfranc outlived William; and to his influence the historians mainly ascribe the peaceful submission with which that monarch's successor, Rufus, was accepted by the kingdom, as well as the comparative moderation of the earlier years of Rufus's reign. The tyranny which has made the name of Rufus odious dates mainly after the death of Lanfranc, which occur-

red in 1089, in the 84th year of his age. His chief writings are—Commentaries on the Epistles of St. Paul, the Treatise against Berengar, and Sermons. His letters, however, are very interesting. The first complete edition of his works is that of D'Achery (fol. Paris, 1648). They are also found in the *Bibliotheca Patrum.* See Milman's *Latin Christianity,* vol. iii. pp. 438–440, and also Dr. Hook's *Lives of the Archbishops of Canterbury,* vol. ii., 1861.

LANFRANCO, Giovanni, 1581–1647; b. Parma, Italy; exhibited a remarkable aptitude for painting while serving as a domestic, and was placed by his employer, count Orazzio Scott, with Carrache, and afterwards sent to Florence, Venice, and Boulogne, for study. He was called to assist Carrache in the frescos of the Farnese palace. He was a remarkably rapid painter, of fertile imagination, and overflowing with energy and originality. The cities of Italy abound with his works, of which the most remarkable are the cupola frescos, that of "St. Andrea della Valle" in Rome being one of the most noted. In the Louvre at Paris are his "Crowning of the Virgin," "Hagar in the Desert," "The Separation of St. Peter and St. Paul," and "St. Peter Praying;" in the London national gallery, "St. Peter and Judas," and others. The galleries of Dresden, Munich, Vienna, and Berlin all have some of his works.

LANFREY, Pierre, 1828–77; b. Savoy; was educated at a Jesuit college at Chambéry, and at the collége Bourbon, Paris, and studied jurisprudence. He entered upon the profession of authorship by publishing, in 1857, *L'Église et les Philosophes du* 18me *Siècle,* which attracted general attention. This was followed, in 1860, by his *Histoire Politique des Papes;* and three years later by *Le Rétablissement de la Pologne.* But his great work was his political and social study of the empire, published under the title *Histoire de Napoléon* 1er (6 vols., Paris, 1867–74). Lanfrey fought with the *garde mobile* in the Franco-German war. In 1871 he was elected a member of the assembly from Marseilles, and shortly after appointed by president Thiers ambassador to Switzerland. In 1873, on the election of MacMahon, he resigned this position, and in 1875 was elected a life-senator. In politics he was bitterly opposed to Gambetta, and acted with the moderate left.

LANG, Andrew. See page 894.

LANG, Louis, b. at Waldsee, Würtemberg, Mar. 29, 1814; at an early age showed great skill in painting likenesses in pastel, executing many such portraits during a residence of four years on lake Constance. He was in Paris from 1834 to 1837, and came to the United States in 1838; went to Italy in 1841, studying at Venice, Bologna, Florence, and Rome; returned to New York in 1845, and spent two years in the decoration of interiors and in modeling figures in plaster; went to Rome again in 1847, and returned to New York in 1849.

LANGBAINE, Gerard, 1656–92; b. Oxford; received a university education, but led a reckless and wild life, finally devoting himself to the collection of plays and the preparation of catalogues of them, in which he showed considerable bibliographical accuracy. These catalogues were published between 1687 and 1719, and are still held in some esteem for the information which they afford concerning the early English drama.

LANGDELL, Christopher Columbus; b. N. H., 1826; was educated at Phillips Exeter academy and Harvard. He studied law at the Harvard law school, and took the degree of LL.B. After practicing law for a time at the New York bar, he was made Dane professor of law at Cambridge, and in 1870 dean of the law faculty. He has compiled several volumes of cases and pleadings, including *Select Cases on Contracts; Select Cases on the Law of Sales;* and *Summary of Equity Pleading.*

LANGDON, John, LL.D., 1739–1819; b. N. H.; received a common-school education, and pursued a mercantile career until the outbreak of the revolution, when he devoted his time and his accumulated wealth to the patriotic cause. He was a delegate to congress in 1775, and speaker of the assembly of New Hampshire the following year. After advancing a large sum for the sustenance of a regiment which had been formed, he furnished the means with which was raised the brigade which gen. Stark commanded in his victory at Bennington, during which engagement Langdon commanded a company. In 1783 he was again chosen a delegate to congress; in 1788 he was governor of New Hampshire; and from 1789 almost continuously until 1811, a U. S. senator.

LANGDON, Samuel, D.D., 1723–97; b. Boston, Mass.; was educated at Harvard university, and taught a grammar-school in Portsmouth, N. H. He attended the expedition against Louisburg in 1745 as chaplain, and in 1747 settled in Portsmouth, where he remained as pastor of the First church (Congregational), until 1774, when he became president of Harvard university. He continued to hold this position until 1780, and was still later a minister at Hampton Falls, N. H. Dr. Langdon received his degree of D.D. from the university of Aberdeen, Scotland. He held a high position and exercised profound influence in public affairs, and was a prominent member of the New Hampshire convention which adopted the federal constitution.

LANGDON, Woodbury, 1739–1805; b. N. H.; was a member of congress 1779–80, a judge of the supreme court of New Hampshire 1782 and 1786–90, and councilor 1781–84.

LANGE, Johann Peter, D.D., b. Prussia, 1802; was in a great measure self-educated, but studied at the gymnasium of Düsseldorf, and afterwards theology at Bonn,

where he was appointed professor of theology in 1854. His writings are highly esteemed among theologians, his *Theologisch-homiletische Bibelwerk* in particular, a very full, critical, exegetical, doctrinal, and homiletic commentary on the Bible, prepared under his supervision, and translated and published in the United States under the general editorship of Dr. Philip Schaff, under the title *Lange's Commentary.* This great work has been received in this country as a welcome addition to the apparatus for biblical study. His other works are: *Leben Jesu; Christliche Dogmatik;* and *Apostolische Zeitalter.* He d. 1885.

LANGELAND (i.e., *long land*), a Danish island, situated at the southern entrance to the Great Belt, between Fuhnen and Laaland. It is 33 m. in length, and about 3 m. in average breadth. Area, about 100 sq.m.; pop. 17,100. It consists of a ridge of low hills, is very fertile in soil, and is well wooded. Grain, peas, butter, and cheese are largely produced. Rudkjöbing, pop. '80, 3,179, on the w. coast, is the only town.

LANGENBECK, BERNHARD VON, professor of surgery in the university of Berlin, director of the Royal Clinical hospital, and general staff physician of the army, is cousin of the famous surgeon, Max Langenbeck, of Göttingen. Having been appointed (1847) successor to the great operator, Dieffenbach, in Berlin, he was not long in acquiring an equally high celebrity, especially through his great skill and success in the operation for harelip, as well as in the replacement of noses, eyelids, and lips. He likewise earned a great reputation through his execution of the operation of resection (q.v.), in which the diseased or injured part only of a bone is removed, instead of the whole limb perhaps being amputated. During the late wars in Germany, a great field opened itself for this kind of operation, and hundreds of the wounded who came under the knife of Langenbeck have to thank him for the preservation of their limbs. On account of his eminent services, he was ennobled, and received the highest medical rank in the Prussian army.

Langenbeck is a man of prepossessing appearance; and instead of that bluff harshness which, whether natural or assumed, has characterized so many great surgeons, he is eminently tender and sympathetic with his patients. As a teacher, he is highly successful; and the Clinical hospital in Berlin, under his personal direction, is the resort of patients from all countries of the world.

LANGENBIE'LAU, a group of nine contiguous villages in Prussian Silesia, 33 m. s.w. of Breslau. Pop. abt. 15,000, employed in linen, cotton, and other manufactures, sugar-refining, and dyeing.

LANGENSAL'ZA, a t. of the Prussian province of Saxony, with a pop. of (1875) 9,888, and considerable manufactures. Here in June, 1866, in an encounter between the Hanoverians and a body of Prussians, the latter were at first defeated, but being reinforced compelled the former to capitulate.

LANGERON, ANDRAULT, Comte de, 1763–1831; b. Paris; appears to have been a soldier of fortune, who did not even hesitate to fight against his own country. He was a subordinate officer in the French contingent during the latter part of the American revolutionary war, and rose to the rank of col. The French revolution expatriated him, and in 1790–91 he was in the Russian service, fighting in the wars with Sweden and Turkey. When the Austrians invaded France and Holland in 1792–94, he served with them, but was again in the Russian employ in 1799, and at Austerlitz was a gen. of division in that service. He fought against Napoleon I. when the latter made his disastrous invasion of Russia, and also in the battle of Leipsic. In 1822 he was appointed governor-general of New Russia. His last military service was in the Turkish war of 1828–29. Died in St. Petersburg.

LANGEVIN, HECTOR LOUIS, b. Quebec, 1820, where he was educated, and having studied law at Montreal, commenced practice at the bar in 1850. He edited several papers, published in the French language in Montreal and Quebec; was mayor of Quebec, 1857–59; member of the provincial parliament in 1858; solicitor-general for lower Canada in 1864; and postmaster-general in 1866. He was one of the commissioners sent to London to organize the confederation of the British North American provinces in 1866, and in 1867 entered the Dominion cabinet. In 1875 he represented Dorchester, Quebec, in the house of commons, and in 1879 was postmaster-general.

LANGHAM, SIMON DE, Cardinal, d. 1376; was a monk in Westminster in 1335, and became subsequently prior and abbot. In 1360 he was lord high treasurer of England; two years later, bishop of Ely; and in 1366, archbishop of Canterbury. He dismissed Wycliffe from the wardenship of Balliol college, Oxford, thus coming in conflict with Edward III.; and having been made by pope Urban V. a cardinal-presbyter, he was driven from his archbishopric, and forced to retire to Avignon. Here he occupied a confidential position with regard to pope Gregory XI. until his death.

LANG'HOLM, a burgh of barony and market t. in Dumfriesshire, Scotland, at the junction of the Ewes, the Wauchope, and the Esk, about 30 m. e. of the county town, and 8 m. n. of the English border. There are factories in the town, whose staple manufactures are woolen yarns, and a woolen cloth called tweed, for which the town is noted. Dye-works are also in operation. Langholm consists of the united villages of Old and New Langholm. Pop. '81, 4,209.

LANGHORNE, John, D.D., 1735–79; b. Kirkby-Steven, Westmoreland. After studying at Winton and Appleby, he devoted himself to private teaching; took orders; went to Cambridge; was private tutor in the family of a Lincolnshire gentleman, to whose daughter he became attached. His suit was rejected, and he went to London, became curate of St. John's, Clerkenwell, and wrote for the periodicals. A short poem in 1765, entitled *Genius and Valor*, defending the Scottish nation against the invective of Churchhill's *Prophecy of Famine*, obtained for him the degree of D.D. from the university of Edinburgh. In 1767 he married the lady who had before rejected him. Her wealthy friends purchased for him the living of Blagden, in Somersetshire, but she died in less than a year after their marriage. Retiring to Folkestone, in Kent, where his brother was curate, he began with his brother's assistance the translation of *Plutarch*, which was published in 1771, and was well received. In 1772 he again married, but his wife died in four years. He was a voluminous writer. Besides his translation of *Plutarch's Lives*, his principal works were: *Letters on Religious Retirement; Poetical Works*, 2 vols.; and 2 vols. of sermons. He wrote also for the *Monthly Review*.

LANGLADE: co., Wis. See page 894.

LANGLAND, or LANGLEY, William. See Piers Plowman, *ante*.

LANGLÈS, Louis Mathieu, 1763–1824; b. France; devoted himself to oriental studies, and in 1787 translated Tamerlane's *Institutes* from the Persian. Two years later he edited the Mantchoo-French dictionary of father Amiot, and in 1795 was appointed administrator and professor of the Persian language in the new school of oriental languages founded by the French government. He was the founder of the geographical society of Paris, and wrote a number of important works on the eastern languages and literature.

LANGLOIS, Victor, 1829–69; b. France; traveled in Asia Minor and Armenia, in western Asia, in 1852–53, making excavations and collecting ancient coins, medals, and inscriptions. At Tarsus, in Cilicia, the birthplace of St. Paul, of the stoic Antipater, and the philosopher Athenodorus, anciently the seat of a celebrated school of philosophy, he found in the cemetery some figures in terra-cotta, which were afterwards exhibited in Paris. He was happy in his discoveries of Greek inscriptions, which numbered over 80. He published, in 1858, *Numismatique de l'Arménie*. Previous to 1861 he went to Italy, adding to his investigations in relation to Armenia in the time of the crusade, a collection of data for an important work on the doctrines of the Mechitarists, the most celebrated of the Armenian monks; visiting San Lazaro, an Armenian convent, a center of Armenian literature, on an island near the city of Venice. The work appeared in 1862. In 1867 he published *Le Mont Athos et ses Monastères*, with a lithographic copy of the Greek manuscript of the geography of Ptolemy, 17th c., which he found in the libraries of the monasteries of Mt. Athos, in Turkey, the seat of the first and most celebrated theological seminary of the Greek church. It is the Monte Santo of to-day, where upwards of 6,000 monks and hermits living in monasteries, grottoes, and caves, in complete seclusion from the world, religiously preserve the ancient MSS. that they were formerly occupied in transcribing. As the result of his researches among these treasures of Greek literature, the first volume of his *Collection des Historiens Anciens et Modernes de l'Arménie*, a translation from the Armenian, was produced in 1868; its completion was prevented by his death.

LANG'NAU, a t. of the canton of Bern, Switzerland, 15 m. e. from Bern, in the Emmenthal. It is situated on the Ilfis, a branch of the Emmen. Weaving is carried on to some extent, and Langnau is the principal mart for the cheese and linen thread of the Emmenthal. Pop. '70, 6,214.

LANGRES, a manufacturing t. of France, in the department of Haute-Marne, is situated at an elevation of 1408 ft. above sea-level, 20 m. s.e. of Chaumont. Here cutlery of the finest quality is manufactured, and there is a considerable trade in grain, lint, cattle, and sheep. It is said to have been the see of a bishop since the 3d c., and possesses a cathedral of the 11th century. Pop. '76, 9,488. Langres, the ancient Andomatunum, was in the time of Cæsar the capital of the Lingones, a name corrupted into Langres.

LANG'SAT, or Lanseh. See Meliaceæ.

LANGSTON, John Mercer, LL.D., b. in slavery at Louisa Court-house, Louisa co., Va., 1829. He was emancipated at 6 years of age, and, having subsequently fitted himself for college, entered Oberlin, where he graduated in 1849. He then entered the theological school of the same institution, whence he graduated in 1853. Having studied law, he was admitted to the bar in 1854; and after a practice of 13 years in the legal profession in Ohio, he accepted a professorship of law in Howard university, Washington D. C. After a time he was appointed dean of the faculty, and in 1873 became vice-president and acting president of the institution. In 1871 he was appointed by president Grant a member of the board of health of the District of Columbia, of which in 1875 he was elected secretary. In 1877 he was appointed by president Hayes minister to Hayti, a post at which he still (1885) remains. He is the author of various addresses and papers upon literary, scientific, and political subjects, and as a public speaker has established a high reputation.

LANGTOFT, Peter, b. 13th c.; was a canon-regular of the order of St. Austin at Bridlington in Yorkshire, England. He was the translator into French of Herbert Bosenham or Boscam's *Life of Thomas à Becket;* and also compiled in French verse a *Chronicle of England*, manuscripts of which are preserved in the Cottonian collection, and among the Arundel MSS. in the Heralds' college in England. His works were translated into English in a metrical version by Robert de Brunne, and published by Hearne in Oxford, 1725.

LANGTON, Stephen, celebrated in the history of the liberties of England, was b. probably in Lincoln or Devonshire, in the early part of the 12th century. He received the chief part of his education in the university of Paris, where he was the fellow-student and friend of Innocent III.; and having completed his studies, he rose through successive grades to the office of chancellor of the university. After the elevation of Innocent, Langton, having visited Rome, was named to the cardinalate by the pope; and, on occasion of the disputed election to the see of Canterbury, he was recommended to those electors who had come to Rome on the appeal, and having been elected by them, was consecrated by Innocent himself at Viterbo, June 27, 1207. His appointment, nevertheless, was resisted by king John; and for 6 years, Langton was excluded from the see, to which he was only admitted on the adjustment, in 1213, of the king's dispute with Innocent through the legate Pandulf. See Innocent III. This reconciliation, however, was but temporary. In the conflict of John with his barons, Langton was a warm partisan of the latter, and his name is the first of the subscribing witnesses of Magna Charta. When the pope, acting on the representation of John, and espousing his cause as that of a vassal of the holy see, excommunicated the barons, Langton refused to publish the excommunication, and was in consequence suspended from his functions in 1215. He was restored, however, probably in the following year; and on the accession of Henry III., he was reinstated (1218) in the see of Canterbury, from which time he chiefly occupied himself with church reforms till his death, which took place July 9, 1228. Langton was a learned and successful writer, but his writings are lost, and the chief trace which he has left in sacred literature is the division of the Bible into chapters, which is ascribed to him. Giraldus Cambrensis (q.v.) dedicated several of his books to Langton.—See Wharton's *Anglia Sacra,* vols. i. and ii.; Lingard, vol. ii.; Milman's *Latin Christianity,* vol. iv.; and Dr. Hook's *Lives of the Archbishops of Canterbury,* vol. ii. 1861.

LANGTRY, Emilie Charlotte Le Breton. See page 895.

LANGUAGE. See Philology : Paleography.

LANGUAGE, Disease of the Faculty of. See Logomania, *ante.*

LANGUAGE of FLOWERS. See Flowers, Language of.

LAN'GUED, or Lampassé, in heraldry. An animal whose tongue is of a different color from his body, is said to be *langued* of that color. It is understood in England that unless the blazon direct otherwise, all animals are langued gules whose tincture is not gules, and an animal gules is langued azure. This rule does not hold good in Scottish heraldry, where "when the tongue, teeth, and claws are of different tinctures from their bodies, they are to be mentioned as armed and langued of such a tincture."—*Nisbet.* When a beast or bird is represented without teeth or claws, this is expressed in blazon "sans langue and arms."

LANGUEDOC, the name given in the middle ages, and down to the French revolution, to a province in the s. of France, bounded on the n. by Auvergne and Lyonnais; on the e. by the river Rhone; on the s. by the Mediterranean and the counties of Foix and Roussillon; and on the w. by Gascony and Guienne. It was traversed through its whole length, from n.e. to s.w., by the Cevennes (q.v.). Languedoc is now divided into the departments of Lozère, Gard, Ardèche, Aude, Hérault, Upper Loire, Tarn, and Upper Garonne. The capital of Languedoc was Toulouse. The name is derived from that of the southern French dialect or Provençal, which was called the *langue d'oc*, whilst the northern was called *langue d'oui* or *langue d'oil*, because in the former the word *oc* (an abbreviation of Lat. *hoc*) was used for *yes*, and in the latter *oil* or *oui* (from Lat. *hoc illo*).

LANI'ADÆ, a family of birds, generally ranked, as by Cuvier, in the order *insessores*, suborder *dentirostres*, but allying them to *accipitres*. They are the largest and most rapacious of the *dentirostres*, preying on small birds, quadrupeds, and reptiles, as well as on large insects. Many of them have the curious habit of impaling their prey on thorns, after which they pull it in pieces, and devour it at leisure. They have a short, strong, abruptly hooked bill, with a notch or tooth on each side, and sharp claws. The shrikes (q.v.), or butcher-birds, are the type of the family; but it is united by numerous links to the family of the *muscicapidæ*, or fly-catchers, and the limits of the two families are very uncertain.

LANIER, Sidney. See page 895.

LANJUINAIS, Jean Denis, Comte de, 1753–1827; b. Rennes, France; named by the Parisians "iron head and lion heart." He made an early success at the bar of Rennes; in 1775 became professor of ecclesiastical law and wrote treatises on the canonical legislation of France. In 1789 he was deputy from Rennes to the states-general, which soon after became the revolutionary national assembly. He entered with ardor into the reforms inaugurated by that body to lift the common people and to destroy the special privileges of classes, but his opinions did not go much beyond a constitutional monarchy similar to that of England, to which idea he maintained a theoretical adherence, though in the

stormy history in which he took part he combated nearly every separate feature of the English system. He pronouncecd with energy against the French nobility as useless parasites, nuisances to socicty, and demanded the suppression of all fcudal rights and privileges. He helpcd to start the *Club Bréton*, which afterwards became the Jacobin club. Early in the assembly he demanded that the impertinent formulas—*je veux, et j'ordonne*—which Louis XVI. had continued to use in his messages to the assembly, should be discontinued. He was a member of the committee on ecclesiastical legislation, and was always considered a stout adherent of the Christian faith of the Jansenist shade. He supported the tithe to king and church as a divine right, and protested energetically against the seizure of the property of the clergy, yet denounced the nobility of Bretagne, Dauphiné, and Languedoc for their opposition to liberty, which "liberty" was then proceeding to confiscate their estates. He opposed and defeated Mirabeau's motion to give the ministers a consultative voice in the assembly. On June 16, 1790, Lanjuinais demanded the abolition of all titles; in May, 1791, thc admission of colored men to all the rights of citizenship; in Aug. that thc king and prince should not continue to assume their titles, nor wear the insignia of rank. During that memorable session of the national assembly he took an cnergetic part in all its reformatory legislation, contributing especially to that affecting ecclesiastical establishments, and cherished the illusion that the church might be brought back to the early democracy of its faith and doctrines and become a coadjutor in national reforms. Lanjuinais was returned a member of the legislative assembly which succeeded the national assembly Oct. 1, 1791; but the radical reform movement of which he had been a leader was now getting beyond his convictions, which gave the color of reaction to his part in the new assembly. The monarchy, crushed by his aid, he seemed to wish preserved. Energetic, brave, and obstinate, he attempted with curious contradictions of opinions to make head against the logic of events which was leading to a democratic republic. He joined with the eloquent Louvet and Barbaroux to denounce and oppose Robespierre, but sustained the motion to exile the Orleans family. He rose with courageous vehemence against the act of accusation of the king, against thc right of the assembly to judge him, and against the forms employed, yet at last voted the king guilty under the accusation. He then voted for his banishment as the last means to save his life. In Feb., 1783, in the climax of Robespierre's power, he supported the decree against the participants in the massacre of the previous Sept., combated the cstablishment of a revolutionary tribunal, attacked the commune of Paris, and faced the orators of the Jacobins in the assembly in the fiercest parliamentary battles of the memorable session which brought the Girondists to the guillotine. Often in personal danger, he clung to the tribune by main force, faced all, answered all, and yielded nothing. When the brutal Legendre, who was by trade a butcher, threatened to hurl him from the tribune, hc retorted—"Yes, obtain a decree that I am an ox, that you may club me." He was placed under arrest by the Jacobins, but escaped and concealed himself until the fall of Robespierre. He was returned to the assembly in 1795, renewed the battle against the Jacobins, aided to remove the disabilities of exiled priests and émigrés, and took part in the formation of the new constitution. During the prolonged despotism of Napoleon, Lanjuinais took a subordinate part in politics; but he had little sympathy with the reactionary policy of the Bourbon restorations which followed. All these years till his death in Paris, he was unceasingly industrious in literary work, mostly on pamphlets, covering a wide range of subjects, legal, legislative, and historic.

LANKÂ, the ancient name of thc capital of Ceylon. In Hindu mythology, it is renowned as the chief city of the giant Râvana (q.v.), who, by carrying off Sítá, the wife of Râma, caused the conquest of Ceylon by the latter personage, who is considered as an incarnation of the god Vishn'u.

LANKÂVATÂRA, thc name of one of the chief religious works of the Buddhists. It treats of their religious law, and of some of their most abstruse philosophical problems. See E. Burnouf, etc., and W. Wassiljew, etc., as named under LALITA-VISTARA.

LANKESTER, EDWIN, LL.D., 1814–74; b. England; was educated at University college, London, and at Heidelberg, for the profession of medicine. He held official positions in a number of English medical societies, and gained reputation as a lecturer and author. Hc devoted himself to investigations in hygiene and social science, and to studies in natural history and in other directions with a view to perfecting himself in these departments. Hc was one of the editors of the *Quarterly Journal of Microscopical Science.*

LANKESTER, EDWIN RAY, b. London, 1847; son of Dr. Edwin; educatcd at St. Paul's school, London, and Christ Church, Oxford. In 1872 he was appointed to a fellowship of Exeter college, Oxford; and two years later professor of zoology and comparative anatomy in University college, London. He is the author of a large number of papers on scientific subjects, chiefly comparative anatomy and paleontology, contributed to thc *Philos. Trans.* royal society, and other publications. He became chief editor of thc *Quarterly Journal of Microscopical Science* in 1869.

LANMAN, CHARLES, b. Mich., 1819, son of Charles James; was educated at an academy, and was for ten years, 1835–45, in a business situation in New York. He adopted the profession of journalism, and was employed on leading newspapers in New

York, Washington, and Cincinnati, and also as correspondent of the *Illustrated London News* and *London Atheneum.* He settled in Washington, and held at different times the positions of librarian to the war department, librarian of copyrights in the state department, and librarian of the house of representatives and of the interior department, besides being private secretary to Daniel Webster. In 1871 he was made American secretary of the Japanese legation, a position which he still retains (1880). Mr. Lanman has published *Adventures in the Wilds of America; Private Life of Daniel Webster; Essays for Summer Hours;* the *Japanese in America;* and a number of other works.

LANMAN, CHARLES JAMES, 1795–1870, b. Conn.; after passing through Yale, studied law and was admitted to practice. He removed to Michigan among the earliest settlers in that state, and was held in high esteem for his liberality and public spirit. In 1835 he returned to Norwich, Conn., which was his birthplace, and was mayor of that city in 1838. He continued to reside there until 1862, when he removed to New London, where he died.

LANMAN, JOSEPH, Rear-admiral, 1811–1874; b. Conn.; joined the navy as a midshipman when fourteen years of age, and was promoted through the different grades to rear-admiral (1867). During the two attacks on fort Fisher (1865) he commanded the second division of admiral Porter's squadron, and led the attack with the flag-ship *Minnesota.* For this service he was highly commended in Porter's official report. From 1869–71 admiral Lanman commanded the s. Atlantic squadron on the coast of Brazil.

LANNER (*Falco lannarius*), a species of falcon, much valued in the days of falconry for flying at the kite. The female only was called a lanner in the language of falconry; the male, being smaller, a *lanneret.*

LANNES, JEAN, Duke of Montebello, a marshal of the French empire, was b. April 11, 1769, at Lectoure; entered the army in 1792, and soon rose to high military rank. He rendered Napoleon important service on the 18th Brumaire, and enjoyed his highest favor. On June 9, 1800, he won the battle of Montebello, whence his title. He bore a principal share in the battle of Marengo, and commanded the left wing at Austerlitz. He served in the campaign against Prussia in 1806, commanded the center at Jena, and distinguished himself at Eylau and Friedland. Being sent to Spain, he defeated general Castaños at Tudela, Nov. 22, 1808, and took Saragossa. In 1809 he again served on the Danube, and commanded the center at Aspern (May 22), where he had both his legs carried away by a cannon-shot. He was removed to Vienna, and died there, May 31. He was interred in the Pantheon, in Paris.

LANNION, a t. and river-port of France, in the department of Côtes-du-Nord, on the Guer, about 7 m. from the mouth of that river. Its trade is chiefly in deals, Bordeaux wine, and colonial produce. Pop. '76, 6,115.

LA NOUE, FRANÇOIS DE, called BRAS DE FER (arm of iron), 1531–91; of an illustrious family in Bretagne; became a conspicuous defender of the Protestants of France. When Henry IV. heard of his death he made this memorable compliment to his memory: "He was a great warrior, and still greater in goodness. One cannot but regret that to gain a little fortress one should lose such a captain—worth more than a whole province." Educated in arms, La Noue was placed at the court of Henry II. at the age of 18, where he evinced more respect for learning than for military exercises, and set to improving the system of court training. He became a Protestant through the influence of d'Audélot, and after the massacre of Vassy joined the great Condé; was in the battle of Dreux, where Condé was made prisoner, and assisted Coligny in conducting a retreat. He was afterwards under Condé, and gained that reputation for bravery, prudence, and humanity combined, which led even the Roman Catholics of that time to give him the name of *the Protestant Bayard.* In 1570 he lost his left arm in battle and had its place filled with an iron one—hence his sobriquet. In 1570, when peace between the Romanists and Protestants was declared, La Noue was about to offer his services to Charles IX. when the latter broke the treaty and again massacred Protestants, and the former escaped into Spain. The king sent for him to negotiate with the Protestant insurgents of Rochelle, whose distrust of the treacherous court made his mission futile, though he succeeded in preventing further bloodshed at that time. They afterwards fought under him in the service of the king of Navarre, resisting the persecutions of the French king. In 1580 he was made captive by Philip II. of Spain, and remained for five years in prison, where he composed his *Discours politiques et militaires*, which was translated into several languages, and placed him in the rank of great writers and statesmen. Philip II., during his captivity, kindly offered him freedom if he would consent to have his eyes put out so that he could not again serve against Spain. In 1586 he aided to defend Geneva against the duke of Savoy. Later, Henry III. of France permitted him to return to his own country. He immediately resumed command in the French army, and his military services were as brilliant and energetic as in youth. Died at the siege of Lamballe.

LANOUE, JEANNE DE, 1666–1736; b. France. After a youth noted for cold penuriousness she changed suddenly to a life of active beneficence, helpful to the poor and the sick, giving her own means and soliciting from others to provide for them. Losing her estate, she continued to dedicate her life to the work begun, and in spite of the coldness of certain religious orders towards her, who even refused their stable for shelter

for her sick, she succeeded in founding a permanent society of young ladies for the work, with a peculiar vestment, who have since been known as sisters of Providence. *L'Ordre de la Providence* is now one of the established beneficences of the Roman Catholic church, though in its origin it received only opposition from it.

LANSDOWNE, Henry Charles Keith Petty Fitzmaurice, Marquis of. See page 895.

LANSDOWNE, Henry Petty-Fitzmaurice, third Marquis of, an English statesman, was b. at Lansdowne house, London, July 2, 1780. His father, the celebrated earl of Shelburne, was premier to George III., and received the coronet of a marquis in 1784. Lansdowne (then lord Henry Petty) was a younger son, and was sent to Westminster school, and afterwards to Edinburgh, then the school of the young whigs destined for political life. He took his degree at Trinity college, Cambridge, in 1801, and when barely of age, entered parliament as M.P. for Calne. He turned his attention to finance; and on Pitt's death he became, at the age of 25, chancellor of the exchequer, in the administration of lord Grenville. In 1809 he succeeded his half-brother in the marquisate, became one of the heads of the liberal party in the house of lords, and during a long opposition consistently advocated those various measures of progress which he lived to see triumphant. When the whigs, after their long exclusion from power, came into office with earl Grey at their head, Lansdowne became lord president of the council, which post he held, with a brief interval, from Nov., 1830, to Sept., 1841, resuming it in 1846, after the fall of the Peel ministry, and again filling it until 1852. He then formally bade farewell to office, and resigned the leadership of the house of lords; but consented to hold a seat without office in the Aberdeen cabinet, and again in the first administration of lord Palmerston. After the death of the duke of Wellington, he became the patriarch of the upper house, and the personal friend and adviser of the queen. He had a keen relish and a cultivated taste for literature, and was the generous patron of men of letters. He formed a splendid library, and one of the noblest collections of pictures and statuary in the kingdom. He refused a dukedom, and might more than once have been prime-minister. His death took place Jan. 31, 1863, at Bowood.

LANSDOWNE, William Petty, Marquis of. See Shelburne, Earl of, *ante*.

LAN'SING, the capital of Michigan, U. S., on Grand river, 110 m. n.w. of Detroit, contains a state house, female college, state agricultural college, and model farm of 700 acres, house of correction for juvenile offenders, 15 churches, a bank, two weekly papers, and several manufactories. Lansing was settled in 1847. Pop. '70, 5,241.

LANSING (*ante*), a city in s. Michigan, the capital of the state; incorporated as a city in 1859; the junction of the Detroit, Lansing and Northern railroad, the Northwestern Grand Trunk, the Jackson, Lansing and Saginaw railroad, and the n. Lansing branch of the Lake Shore and Michigan Southern railroad; pop. '80, 8,319. It is the center of a populous district, surrounded by a region of great fertility, which with the coal and lumber in the immediate vicinity forms the stimulus of an ever-increasing trade. The rivers Grand and Cedar supply water-power and additional means of transportation. Among the manufactures are sashes, doors, and blinds, wheels, barrels, agricultural implements, sewing-machines, and steam-engines. Its educational advantages are superior, both in the number and systematic grading of the public schools, and the rare opportunity for culture afforded by the libraries. It contains the state library of 40,000 vols., a national bank with a capital of $185,600, an insurance company with a capital of $100,000, an opera-house, a young men's literary association, and an odd fellows' institute for the education of the orphans of members of that order, established in 1871. It has also the Michigan Homeopathic college, open to both sexes, having a library of 1500 vols. It is 37 m. n. of Jackson, 208 m. e.n.e. of Chicago, and 72 m. e.s.e. of Grand Rapids. It is situated on high bluffs divided by the Grand river, which is spanned by a wooden bridge and 4 iron ones. It is a well-built town, with avenues 5 rods and sometimes 7 rods in width. In the southern portion, near the mouth of the Cedar river, is a celebrated mineral spring.

LANSING, John, 1754–1829; b. N. Y.; studied law, but during the beginning of the revolutionary war was gen. Schuyler's military secretary. He served seven years in the legislature of New York, was mayor of Albany four years; a member of the congress of 1784–88, and of the state convention on the constitution of the United States. He was judge of the supreme court in 1790, chief-justice 1798, and chancellor of the state 1801–14.

LANSINGBURGH, a village in Rensselaer co., N. Y., 3 m. from Troy, pop. 7,432; has thriving manufactures, particularly of crackers, oil-cloth, and brushes; and still publishes the *Gazette*, founded in 1798, almost the oldest existing newspaper in the state. Received its name from Abraham J. Lansing, one of the original settlers, in 1771.

LANTANA, a genus of shrubs belonging to the order verbenaceæ, ordinarily called the vervain family. The lantana shrubs are chiefly tropical. They are odoriferous and stimulant from the presence of an essential oil. *L. pseudothea* is used in Brazil as a substitute for tea. *L. camara* and *L. camixta* are natives of tropical America, and are often seen in hot-houses. In the Gulf states there are two species which are indigenous, *L. camara* and *L. involucrata*. The lantana bears very showy and beautiful flowers.

LANTERN, in architecture, an ornamental structure raised over domes, roofs, etc., to give light and ventilation. The dome of St. Paul's cathedral and many other large

domes are crowned with a lantern. Where a lantern is for the purpose of giving light, it is called a *lantern-light.* In Gothic architecture, a *lantern-tower* is frequently placed over the center of cross churches—the vault being at a considerable height, and the light admitted by windows in the sides. York and Ely cathedrals, and many churches in England, have such lantern-towers.

LANTERN-FLY (*Fulgora*), a genus of homopterous insects; the type of a family *fulgoridæ,* allied to *cicadidæ,* but having legs more adapted for leaping, and destitute of organs for producing sound. The forehead is remarkably prolonged into an empty vesicular expansion, which assumes in the different species various and very singular forms, sometimes equaling the body of the insect in size. The colors are generally rich. The species are natives of the warmest parts of the world. The name lantern-fly was originally given to *F. laternaria,* a large species, found in Guiana, and of which the inflated projection of the forehead is said to be sometimes most brilliantly luminous; but the evidence is doubtful, and many naturalists refuse to believe in the luminosity of any of this genus. The most probable explanation is that the luminosity is sexual, and merely occasional, perhaps limited to particular seasons. Concerning the luminosity of the CHINESE LANTERN-FLY (*F. candelaria*), there is still greater doubt. The prolongation of the forehead in this species is a comparatively narrow snout.

LAN'THANUM, or LANTHA'NIUM, so named from the Greek word *lanthanein,* to lie hid, is a metal which was discovered by Mosander in 1841 in *cerite* (q.v.), a hydrated silicate of cerium. It is of little chemical interest, and is of no practical value. Till recently, the three metals cerium, lanthanum, and didymium were all confounded together under the name cerium.

LANU'VIUM, an old and important city of Latium on the Appian way, about 16 m. s. of Rome, on a hill commanding an extensive view of the sea. It was probably colonized from Alba. It first became important in the 5th c. B.C., by the part it took against Rome as one of the 30 cities of the Latin league. Afterwards in the wars between Rome and the Æqui and Volsci it sided with Rome. But in the great Latin war, B.C. 340, it took part against Rome, but was treated leniently by the victorious Romans, who, instead of punishing, made the inhabitants Roman citizens. After the time of Cicero it was important only as the chief seat of the worship of *Juno Sospita.* After this it continued faithful to the Romans, particularly in the second Punic war. It was the birthplace of Antoninus Pius, of Milo the antagonist of Clodius, and near it was born the comedian Roscius. The small town of *Civita Lavinia* or *Citta della Vigna* occupies part of the site of the old Lavinium, of which but few remains are found.

LAN'YARDS, in a ship, are short ropes used either to make fast various apparatus in its place, or to stretch other and important ropes to their utmost tension.

LANZA, GIOVANNI, b. Vignala, Piedmont, 1815; studied medicine at Turin, and entered into practice in his native place. In 1848 he entered the Italian parliament as a supporter of Cavour. In 1855 he entered the cabinet as minister of public education, and, after serving three years, exchanged this office for that of minister of finance. In 1859, after the peace of Villafranca, he resigned at the same time with the rest of the Cavour cabinet. Again entering parliament, he was several times elected president of that body; but in 1864 he was minister of the interior under La Marmora, serving, however, but for a single year, after which he again entered parliament, and was elected president. Having opposed the financial policy of the prime minister, he resigned the presidency when the ministry triumphed. He was re-elected again in 1869, and when the ministry resigned in consequence he formed a new cabinet himself, taking the position of minister of the interior. This cabinet remained in power until 1873, when Lanza resigned because the parliament refused to levy the taxes necessary to the efficiency of the government. He d. 1882.

LANZAROTE, one of the Canaries (q.v.).

LANZI, LUIGI, a celebrated Italian antiquary, was born at Monte dell' Olmo, near Macerata, June 14, 1732. He entered the order of the Jesuits, and resided at Rome, and afterwards at Florence, where he died Mar. 30, 1810. In 1782 he published at Florence his *Descrizione della Galleria di Firenze.* His great works, distinguished for their profound erudition, are his *Saggio di Lingua Etrusca* (3 vols. Rome, 1789), in which, contrary to the prevalent opinion among Italian savants, he maintains the influence of Greece upon Etruscan civilization, and his *Storia Pittorica d'Italia,* etc. (Florence, 1792; and Bassano, 1789 and 1806). This latter work has been translated into English by Thomas Roscoe (Bohn's standard library, 3 vols. 1847). He is the author also of several poems, works on Etruscan vases, sculptures, etc. His posthumous works were published in 2 vols. at Florence in 1817.

LAOCOÖN, according to classic legend, a priest either of Apollo or Neptune, in Troy, who in vain warned his countrymen of the deceit practiced by the Greeks in their pretended offering of the wooden horse to Minerva, and was destroyed along with his two sons by two enormous serpents which came from the sea. They first fastened on his children, and when he attempted to rescue them, involved himself in their coils. This legend is not Homeric, but of later origin. It was, however, a favorite theme of the Greek poets, and is introduced in the *Æneid* of Virgil. It acquires a peculiar interest

from being the subject of one of the most famous works of ancient sculpture still in existence: a group discovered in 1506 at Rome, in the Sette Sale, on the side of the Esquiline hill, and purchased by pope Julius II. for the Vatican. It was carried to Paris, but recovered in 1814. The whole treatment of the subject, the anatomical accuracy of the figures, and the representation both of bodily pain and of passion, have always commanded the highest admiration. According to Pliny, it was the work of the Rhodian artists Agesander, Polydorus, and Athenodorus, but this is doubtful. Casts of it are to be found in every European museum. For an æsthetic exposition of its merits, see Lessing's celebrated *Laocoon oder über die Grenzen der Malerei und Poesie.*

LAODICE'A, a city of ancient Phrygia, near the river Lycos, so called after Laodice, queen of Antiochus Theos, its founder, was built on the site of an older town named Diospolis. It was destroyed by an earthquake during the reign of Tiberius, but rebuilt by the inhabitants, who were very wealthy, fell into the hands of the Turks in 1255, was again destroyed in 1402, and is now a heap of uninteresting ruins, known by the name of Eski-Hissar. Art and science flourished among the ancient Laodiceans, and it was the seat of a famous medical school. The number of Jews who were settled here at the rise of Christianity will account for its importance in the primitive history of the church. An important ecclesiastical council, the first council of Laodicea, was held here in 363, which adopted resolutions concerning the canon of the Old and New Testaments, and concerning ecclesiastical discipline. A second council was held here in 476, which condemned the Eutychians.

LAODICE'A (*ante*). Not less than six Greek cities, built by the monarchs of the Syrian empire, bore this name, five of them in honor of Laodice, wife of Seleucus Nicator, and one in honor of the queen of Antiochus Theos. Of these, one in Media, one in Mesopotamia, and one in Phenicia have not been identified in modern times. Of the others, one is in Iconium, on the high road from Greece to the Euphrates, and another, now known as Latakih, is in Asiatic Turkey, in the province of Syria, on the Mediterranean. The Laodicea described above (*ante*) was annexed to the Roman empire 133 years B.C., after which it became one of the most populous, wealthy, and splendid cities of Asia Minor, and the capital of the province of Greater Phrygia. The Christian church here was possibly founded by Paul, who is believed by many to have written a letter to it, which has been lost. The only evidence of this is in Col. iv. 16: "And when this espistle is read among you, cause that it be read also in the church of the Laodiceans; and that ye likewise read the epistle from Laodicea." The first epistle to Timothy, if the superscription at the end is authentic (which, however probable, is by no means certain), was "written from Laodicea, the chiefest city of Phrygia Pacatiana." The church of the Laodiceans has become familiar to the Christian world, as a type of spiritual indifference from the description in Rev. iii. 14–18. See LATAKIA, *ante.*

LAODICE'A, COUNCIL OF, was held some time during the 4th c., but whether towards the beginning, middle, or end has been earnestly debated without being determined. It consisted of 32 bishops from different provinces of Asia, and embodied its decisions in 60 canons relating to matters of ritual, church order, dignity, precedence, discipline, morals, faith, and heresy. They are all worthy of study as intimating the state of doctrine, thought, and life in the churches of that day, affected, as they had been and were, by the religion, philosophy, vices, and customs of the heathen world. The most important of them is the last, giving a list of the books of Scripture received at that time as canonical, which does not contain the Apocrypha or Revelation.

LAODICEANS, EPISTLE TO THE. The extant Latin epistle, bearing this title and professing to have been written by Paul, is universally admitted to be a forgery of comparatively modern date. It contains 19 verses, evidently made up of clauses and sentiments from several of Paul's genuine epistles, taken out of their connection and awkwardly joined together to the great injury of their intellectual force and spiritual fervor. See EPHESIANS, EPISTLE TO THE, and EPISTLES, SPURIOUS.

LAOM'EDON, one of the legendary Trojan kings, succeeded Ilus, who founded the city of Ilium. He is said to have been served by Neptune and Apollo by command of Jupiter, the former erecting the walls of the new city, while Apollo acted as herdsman. Laomedon having refused to pay them according to agreement, Neptune caused a monster to attack the Trojans and lay waste their fields. On this the king offered to reward, with the immortal horses previously given to Tros by Jupiter, whoever should destroy the monster. It having been declared by the oracle that a noble virgin must be sacrificed, the daughter of Laomedon, Hesione, was chosen by lot, but was saved by Hercules, who slew the monster. Laomedon, always deceitful, repaid Hercules with mortal horses, whereupon he attacked Troy, and, having captured the city, killed Laomedon, and raised Priam, his son, to the throne. Laomedon was the grandfather of Paris, who, by abducting Helen, the wife of Menelaus, occasioned the celebrated siege of Troy.

LAON, chief t. of the department of Aisne, in France, is situated in a strong position on a steep isolated hill, 80 m. n.e. of Paris. The walls (flanked with towers) with which it is surrounded, the noble Gothic cathedral (built 1112–14) on the summit of the hill, and the charming character of the scenery in the vicinity, greatly enhance the appearance of the town. The public library, with 20,000 vols., contains also a beautiful

statue in marble of Gabrielle d'Estrées. The manufactures are nails, hats, leather, and hosiery. Here, on Mar. 9 and 10, 1814, Napoleon I. was defeated by the allies. Laon had to surrender to a German force on Sept. 9, 1870. Pop. '76, 12,036.

LA'OS. See SHAN STATES.

LAO-TZU, or LAO-TSE. See LAOU-TSZE, *ante.*

LAOU-TSZE, a celebrated philosopher of China, the founder of a religion as ancient and important as that of Confucius (q.v.). This sect is commonly known as the *Taou*, or sect of reason. His family name was *Le*, or Plum, and his youthful name *Urh*, or Ear—given him on account of the size of his ears. His name of honor was *Pe-yang*, his surname *Laou-tsze* ("old child"), or *Laou-keun-tsze* ("old prince"), by which he is generally known. Little authentic is known of the life of Laou-tsze, his followers having subsequently made a myth of his biography. He was born in the third year of the emperor Ting-wang, of the Chow dynasty (604 B.C.), in the state of Tseu, at present known as Hoo-pih and Hoo-nan, 54 years before Confucius. His father, according to the legends of the Taou sect, was 70 years before he married, and his mother 40 years of age when she conceived him. He was the incarnation of a shooting-star, a kind of god on earth, and was 80 years in his mother's womb. More trustworthy is the statement that he was a historian and archivist of a king of the Chow dynasty, who loved books, studied rites and history, and went, about 600 A.D., to the western parts of China, where he might have become acquainted with the worship of Fuh or Buddha. Confucius was so attracted by his renown that he went to see him, but the meeting does not appear to have been entirely amicable, for Laou-tsze reproached the sage with pride, vanity, and ostentation, stating that sages loved obscurity and retreat, studied time and circumstances before they spoke, and made no parade of knowledge and virtue. Confucius, however, highly lauded Laou-tsze to his followers, and called him a dragon soaring to the clouds of heaven, which nothing could surpass. Laou-tsze asked Confucius if he had discovered the *Taou* ("path" or "reason") by which heaven acts, when Confucius answered that he had searched for it without success. Laou-tsze replied that the rich sent away their friends with presents, sages theirs with good advice, and that he humbly thought himself a sage. By this he probably meant that all he could offer Confucius was the advice of seeking the Taou. He retired to Han-kwan, where the magistrates of the place received him, and there he wrote the *Taou-tih-king*, or Book of Reason and Virtue. He died, or, according to other accounts, mounted to heaven on a black buffalo, in the 21st year of the reign of King-wang of the Chow dynasty, 523 B.C., having attained the age of 119 years.

The doctrines of Laou-tsze differ from those of Confucius—indeed, have a higher scope—the object of the last-named philosopher, or rather statesman, being the practical government of man through a code of morals; that of Laou-tsze the rendering of man immortal through the contemplation of God, the repression of the passions, and the perfect tranquillity of the soul. Hence his doctrine was, that silence and the void produced the Taou, the "Logos" or reason by which movement was produced; and from these two sprung all beings which contained in themselves the dual principle of male and female. Man was composed of two principles—the one material and the other spiritual—from which he emanated, and to which he ought to return, by throwing off the shackles of the body, annihilating the material passions, the inclinations of the soul, and pleasures of the body. By this means, the soul was to regain its origin—become immortal. This could only be effected by the renunciation of riches, honors, and the ties of life. Up to the period of Laou-tsze, the national worship had been restricted to the *Shang-te*, or "supreme ruler" of the world, and the *Teen*, or "heaven." For these Laou-tsze substituted the *Taou* ("path" or "reason") of the cosmos, not citing, as the Confucianists, the precedents of ancient kings or sages—appealing to the abstract principle, and, in fact, preaching a religion which found an echo in the Chinese breast. The followers of his sect, however, considerably altered his doctrines. The moral code of the Taou sect is excellent, inculcating all the great principles found in other religions —charity, benevolence, virtue, and the free-will, moral agency, and responsibility of man. But it subsequently became corrupted with strange doctrines and practices. They promulgated that they had discovered the drink of immortality, and obtained a host of partisans in the reign of Wan-te of the Han dynasty, 140 A.D., and many of the emperors were addicted to their rites, and some poisoned by the drink of immortality. Alchemy also became another pursuit of the sect; so did divination, the invocation of spirits, and the prediction of the future. The doctors of the sect, called *Teen-sze* ("celestial doctors"), were supposed by these means to become ethereal, and to be caught up to heaven without passing through the intermediate state of death. Such statements, however, were ridiculed by the *Joo-keaou*, or sect of Confucius, the skeptics of China, who openly derided their pretensions. Innumerable gods were also introduced into the worship, which was assimilated to the Buddhist. Since the 2d c. A.D. the sect has continued to spread in China, Japan, Cochin-China, Tonquin, and amongst the Indo-Chinese nations. Monasteries and nunneries belonging to them were founded and flourished. The principal books or classics of the sect are the *Taou-tih-king*, already cited; the collections called *Taou-chang;* the *Kan-ying-peen*, or Book of Rewards and Punishments; and the *Tan-kwei-tsih*, or List of the Scarlet Laurus Cassia.

Stanislas Julien, *Le Livre des Recompenses* (8vo, Paris, 1838); Pauthier, *La Chine* (8vo, Paris, 1837, p. 114–17); Neumann, *Lehrsaal des Mittelreichs* (Munich, 1856); Grossier, *Description de la Chine* (p. 571; *Mémoires sur la Chine* (x. 425; xv. 208).

LA PAZ, a department in Bolivia, extending over a large portion of the valley of the Desaguedero; 45,000 sq.m.; pop. 447,882. It contains the eastern Cordilleras from the Nevado de Illimani northward, the numerous valleys which lie on the e. declivity of that range, and so much of the level plain as lies w. of the Rio Beni. This latter portion and the valleys are very fertile, but are little cultivated. Great quantities of gold sand are brought down by the rivers. Capital, La Paz.

LA PAZ, a t. in lower California, 24° 10′ n. lat., pop. 3,000; situated on the bay of La Paz. Near it is the harbor of Pichiluigo, accessible for small vessels. The land around is fertile and cultivated, and there is a considerable trade with San Francisco in tropical fruits. Formerly it was the seat of a valuable pearl-fishery, and the gold mine of St. Antonio is near the town. In 1853 a small party of Americans from upper California made an attack on the place, overcame the inhabitants, and declared a republic. They set up a temporary government, but the people of the neighborhood collected an armed force and made a demonstration, when the invaders retired.

LA PAZ DE AYACUCHO, a city in Bolivia, 16° 30′ n. lat., and 68° 10′ w. long., on both sides of the Chuqueapo river; pop. 83,000. It is one of the finest cities in Bolivia, built at an elevation of more than 12,000 ft., and commanding a magnificent view of the surrounding scenery. The capital of the department of La Paz, it is also the leading commercial center, connected with Islay by the Arequipa railway. Founded in 1548. It contains many public buildings, some of which are ancient. Conspicuous structures are a fine cathedral and 14 other churches, a university, schools, etc.

LAP-DOG, a name common to all those diminutive varieties of dog which are kept as drawing-room pets, and which ladies take with them in their carriages. Most of them are spaniels (q.v.), as the king Charles spaniel, the Maltese dog, etc. Gentleness of disposition, large ears, and long hair are among the approved characteristics of lap-dogs. The very smallest of the race is the MEXICAN LAP-DOG.

LAPEER′, a co. in s.e. Michigan, drained by the head-waters of Flint river, whose branches uniting within its limits run s.w., the Belle river, 75 m. long, rising in it and running s.w., and Mill creek, running e. and emptying into Black river, in St. Clair co.; 666 sq.m.; pop. '80, 30,138. It is intersected by the Detroit and Bay City railroad, and the Northwestern Grand Trunk railway. Forests of oak and pine grow on a surface of alternate hill and prairie, and maple sugar is included in the forest product. The soil is very fertile, and produces a prodigious amount of grain; also, tobacco, wool, and hops. Stock raising receives some attention; number of sheep in '70, 52,191. Value of all live stock, $1,181,879. It has 165 manufacturing establishments, employing 986 hands, with a capital of $997,702; annual product, $2,177,553, engaged in making carriages, engines, iron-castings, sashes, doors, and blinds. It has a large number of saw-mills, and 11 flour and grist mills. Value of home manufactures, $10,257. Assessed value real and personal estate in '80, $11,663,336. Seat of justice, Lapeer.

LAPEER, a city in s.e. Michigan, junction of the Detroit and Bay City railroad, and the Northwestern Grand Trunk railway, 6 m. from the town of Fish Lake, with which it is connected by a branch railroad; pop. '80, 2,911. It is centrally situated on the Flint river, 60 m. n. of Detroit, 50 m. s.s.e. of Bay City, 20 m. e. of Flint, and 46 m. from Port Huron. It is in the midst of an agricultural and lumber country, and has several saw-mills for the manufacture of pine lumber, and shingles and machine-shops where engines and windmills are made. It has good public schools, a first-class hotel, 3 banks, and 6 churches.

LAPÉROUSE, JEAN FRANÇOIS DE GALAUP, Count de, a famous French voyager, b. near Albi, in Languedoc, now in the dep. of Tarn, in 1741; attained the rank of captain in the French navy; and was sent in 1782 to destroy the British forts or settlements in Hudson's bay. In this expedition he showed a remarkable power of contending with difficulties, and accomplished his object notwithstanding the storminess of the sea and the ice in which it abounded. He signalized himself also by his humanity towards the occupants of the forts which he destroyed. He was now chosen to command an expedition of discovery sent out by the French government. He sailed in Aug., 1785, with two ships, visited the n.w. coast of America, explored the north-eastern coasts of Asia, and made important discoveries in that region, although he failed to discover the n.w. passage. In Feb., 1788, he anchored in Botany bay, after which all trace of him was lost. The French government offered a reward of 10,000 francs for information, and in 1791 sent an expedition in search of him, but without success. In 1826 an English captain, Dillon, found on the island of Tucopia a number of things belonging to Lapérouse's ships, obtained from the inhabitants of Mallicollo, one of the New Hebrides. The East India company sent capt. Dillon, and the French government sent out an expedition under Dumont d'Urville to investigate all traces of Lapérouse and his fellow-voyagers. Eye-witnesses of the destruction of two French vessels were found; it was fully ascertained that both of Laperouse's ships had been wrecked in a storm on a coral reef off the coast of Mallicollo, and that all on board had perished. The account of Laperouse's

voyage, prepared from journals sent home by him, was published under the title of *Voyage autour du Monde* (4 vols., Paris, 1797, with atlas).

LAPHAM, Elbridge G. See page 895.

LAPHAM, Increase Allen, ll.d., 1811–1875; b. N. Y.; having gained a useful experience in Canada as civil engineer on the Welland canal, was engaged on the Miami canal in Ohio, and the canal at Louisville, Ky. In 1827 he was the author of an article in *Silliman's Journal*, entitled "Notice of the Louisville Canal and of the Geology of the Vicinity." In 1833 he held the office of secretary of the Ohio board of canal commissioners, and was a member of a special legislative committee on the geological survey of the state; combining with his official duties the study of botany, and beginning the collection of an herbarium, which at the close of his labors numbered 8,000 specimens. In 1836 he removed to Milwaukee, Wis., and subsequently filled many positions in the gift of state and city, with dignity and honor. He was elected president of the Wisconsin historical society in 1862, and held the office till his death. He called the attention of the legislature of 1867 to the careless destruction of forest trees, suggesting a remedy. In 1869 he originated the system of recording the variations of the atmosphere, since adopted at Washington, and was the discoverer of the lunar tide on lake Michigan. In 1873 he was appointed state geologist, directing, during that and the following year, a thorough topographical survey of the state, and preparing very valuable reports. Besides many important contributions to scientific literature, he published in 1844, *Wisconsin: its Geography, Topography, History, Geology, and Mineralogy;* in 1855 a *Geological Map of Wisconsin*, and *Antiquities of Wisconsin*, the latter in the *Smithsonian Contributions.*

LAPIDARY INSCRIPTIONS, a title derived from the Latin *lapis*, a stone, and applied to monumental inscriptions, epitaphs, etc. These include records of public and private occurrences, of laws, decrees, etc., and are engraved or chiseled in stone or metal. Among the ancients the custom of resorting to this method for the preservation of records was very common, and the Persians, Greeks, Egyptians, and Romans left innumerable instances of this class of memorial. Inscribed tablets of stone or metal took the place of printing, under the ancient system, since upon these being set up in the market, or other public place, every citizen could read them, or procure them to be read to him; and, if he desired, could copy them for his private perusal and study. Commonly these inscriptions, of whatever character, were engraved on metal plates; or more usually on soft clay, which was afterwards baked in an oven or kiln; or again, on marble cut in slabs, while not infrequently they were carved on the flat surface of unhewn rock. Of the metals used, brass and bronze were the most common, though lead, tin, and gold were sometimes employed. Among the very earliest inscriptions were the cuneiform or arrow-headed of the Assyrians, or Babylonians, and the later Persians. These date as far back as 20 centuries before the Christian era, and the investigations of Layard among the ruins of Nineveh, and those of Botta and Rawlinson in deciphering, first brought a knowledge of their existence and nature to the modern world. Burnouf and Lassen followed, with a more perfect rendering; but Rawlinson's translation of all then existing Persian inscriptions, published by the royal Asiatic society in 1846, afforded all that has been learned concerning them. It is sufficient to say with regard to the character of the later Persian inscriptions, that they recorded facts of the reigns of Darius, Xerxes, and Hystaspes, Cyrus, and Artaxerxes; including genealogies, the names of the Persian satrapies, historical events—assassination, insurrection, accessions to the throne, etc. These inscriptions were not only delineated on monuments, solid rocks, and the walls of the cities; but even books were found, being dried slabs of clay, and barrel-shaped masses of terra-cotta, which were closely inscribed. The first notices of the cuneiform inscriptions were brought to Europe in the 16th c. by Pietro delle Valle; a century later, Kœmpfer and Tavernier published imperfect specimens, and these were followed by the publication of Chardin a few years later. The language is said to belong to the Turanian division, and the cuneiform system is believed to have been invented by a Scythian nation. The Assyrian inscriptions appear to have been framed in a method which can hardly be termed alphabetical; but though extremely enigmatical on this account, they have nevertheless been translated by Rawlinson, Fox Talbot, and others, with considerable success. The *Corpus Inscriptionum* of Rawlinson, issued at the expense of the British government, is chiefly historical, and extends from a period 20 centuries before the Christian era, to that of the immediate successors of Nebuchadnezzar, including the reigns of the ancient Turanian monarchs. See Cuneiform, *ante.* Inscriptions were a customary mode of record among the ancient Greeks and Romans; covering a period, among the latter, extending from 145 b.c. to the extinction of the Latin language. The people of Etruria also employed inscriptions liberally, but the language which they used has not been deciphered. Inscriptions in India reach back as far as 400 b.c., and those of the Chinese are believed to antedate all others except the Egyptian. The age is unknown of the Aztec and Palenqué inscriptions on the western coast of America, and of those found in the Mississippi valley. The use of abbreviations in inscriptions renders it exceedingly difficult to decipher them, and an art has grown up in that direction, as to which many published works exist. See Hieroglyphics; Runes, *ante;* Rosetta Stone : Paleography.

LAP'IDARY-WORK, the art of cutting, grinding, and polishing small pieces of ornamental or precious stones for jewelry. (For the engraving of figures on precious stones, see CAMEO and GEMS.) The working of the less precious ornamental stones has made great strides within the last 20 or 30 years, and nowhere has it reached greater perfection than in Scotland. A large trade is now carried on in this kind of work between Birmingham and some towns of Germany, where the Scotch patterns are imitated; and although the foreign productions are of inferior workmanship, their comparative cheapness commands a ready market.

Stones are cut by rubbing the powder of a harder stone against a softer one. There are 10 types of hardness (q.v.), from talc up to diamond; but in practice it is found most convenient to employ either diamond-powder or emory, which is next to it, for the cutting of all kinds of stones. Diamond-dust is found to cut 10 times faster than emery; so that, except where the machine is driven by water-power, it is found more profitable to employ diamond-powder, notwithstanding its high price. Diamond-powder is prepared from the inferior kind of diamonds (q.v.) called bort (costing about a guinea per carat), by grinding in a steel mortar.

To produce a plain polished surface on any stone, say a jasper, it goes through the three processes of cutting or slitting, grinding, and polishing. The slitting-wheel, which is driven by means of the handle, is a mere disk of thin sheet-iron, from 6 to 9 in. in diameter, with a turned edge, and is generally placed in a horizontal position. The diamond-dust, mixed with a little sperm-oil, is applied to the edge of the slitting-wheel with the finger, and is then pressed into the soft iron with a smooth hard stone. The wheel will then continue to cut for several hours without any renewal of the powder. When the wheel is thus prepared, a stone held by the hand to the cutting edge is rapidly slit through. During the operation, sperm-oil is kept dropping from a can, to keep the wheel from heating.

The grinding is performed on a horizontal lead-wheel, charged on its upper surface with emery-powder; the stone to be ground being pressed against it with the hand until it is smooth enough for polishing. In polishing, a tin wheel is substituted for the leaden one, the polishing material being rotten-stone.

If, instead of a plane flat surface, some ornamental surface is required, say an agate brooch in the shape of a butterfly, a model is produced in plaster of Paris, to serve as a guide, and metal size-plates are prepared for the pieces of stone which are to form the wings, etc. For these, thin slices of agate are cut at the slitting-machine, or chipped off with a hammer and chisel, and are then formed roughly into shape, by means of soft iron nippers. The several pieces are now ground and polished, as already described, and the brooch is finished. When pieces of stone are too small to be held in the hand, they are attached with cement to a wooden handle, and then applied to the wheels.

One of the most elaborate operations of the lapidary is the cutting of cairngorm (q.v.) stones. In faceting the surface, which so much enhances their beauty, the lapidary uses the ordinary grinding-wheel, with the addition of a wooden peg, stuck round with projecting wires. The stone is fixed with cement on the end of a stick, having a hole at the other end fitting on the wire-points, which, being at different heights, enables the stone to be held at any angle to the grinding surface. With this simple guide, the lapidary proceeds to cut the facets, dividing them off by the eye, aided by his sense of feeling; and in this way, in about a fortnight's time, as many as 700 facets are produced of perfect regularity upon a stone, say an inch in diameter. A cairngorm of good color, so cut, may be worth about £30.

LA'PIS LAZ'ULI, a mineral of beautiful ultramarine or azure color, consisting chiefly of silica and alumina, with a little sulphuric acid, soda, and lime. The color varies much in its degree of intensity. Lapis lazuli is often marked by white spots and bands. It is generally found massive, and is translucent at the edges, with uneven, finely granular fracture, but sometimes appears crystallized in rhombic dodecahedrons, its primitive form. It is found in primitive limestone and in granite; in Siberia, China, Thibet, Chili, etc. The finest specimens are brought from Bokhara. The Greeks and Romans called it *sapphire.* It was more highly esteemed by them as an ornamental stone than it now is. They used it much for engraving, for vases, etc. It is extensively employed in ornamental and mosaic work, and for sumptuous altars and shrines. It is easily wrought, and takes a good polish. The valuable pigment called ultramarine (q.v.) is made from it. It is one of the minerals sometimes called *azure stone.*

LAPITHÆ, a wild race, inhabiting, in ancient times, the mountains of Thessaly. They derived their name from a mythical ancestor, *Lapithes,* a son of Apollo, and the brother of Centauros, the equally mythical ancestor of the Centaurs (q.v.). A bloody war is said to have been waged between the kindred races in prehistoric times, which ended in the defeat of the Centaurs, but the Lapithæ were in their turn subdued by Hercules.

LAPLACE, PIERRE SIMON, Marquis de, one of the greatest of mathematicians and astronomers, was b. Mar. 23, 1749, at Beaumont-en-Auge, in the department of Calvados; was for some time a teacher of mathematics in the military school there, and afterwards went to Paris, where, having attracted the notice of D'Alembert, he was,

through his influence, appointed professor in the military school, and was admitted a member of the academy of sciences. He had by this time mastered the whole range of mathematical science as then known, and had besides solved several problems which had for many years defied the attempts of geometers; and now it occurred to him to devote his mathematical powers to the service of astronomy, and he accordingly commenced to plan the work which afterwards appeared as the *Mécanique Céleste.* In his political life, Laplace presents a sorry picture. He was appointed minister of the interior by Bonaparte, but was, after six weeks, deposed for incapacity. He continued, however, to receive marks of honor from Napoleon, and on the erection of the imperial throne was made a count. In 1814 he voted for the appointment of the provisional government, for Napoleon's deposition, and the restoration of the Bourbons. After the second restoration, Louis XVIII. made him a peer and a marquis. In the chamber of peers he showed, as he had done under the revolutionary government, the greatest unfitness for political affairs, and the most extreme servility. He died at Paris, Mar. 5, 1827. Laplace was gifted with wonderful scientific sagacity; this appears especially in his explanations of certain results of mathematical analysis formerly looked upon as inexplicable, but which he showed to be the expression of physical phenomena which had hitherto escaped detection, and subsequent observations generally confirmed Laplace's conclusions. Above all his powers, his wonderful memory shone pre-eminent. His *Mécanique Céleste*, and supplements to it (5 vols., Paris, 1799–1825), are, next to Newton's *Principia*, the greatest of astronomical works. His *Exposition du Système du Monde* (2 vols., Paris, 1796; 6th ed. 1824) is intended for those who cannot follow the difficult demonstrations and calculations in his great work. All Laplace's important investigations were made for the purpose of testing the generality of the law of gravitation, and the cause of sundry irregularities in the motions of the planets. His works comprise many able treatises on particular subjects in astronomy, pure mathematics, probabilities, mechanics, heat, and electricity; most of them being memoirs communicated to the academy of sciences.

LAPLACE, Pierre Simon, Marquis de (*ante*). Laplace's great field was mathematical astronomy, and he stands second to none, except Newton, in this highest of all scientific branches. To him we owe the demonstration of the invariability of the major axis of the planetary orbits, as well as the inequality of the motions of Jupiter and Saturn. He also solved the problem of the mean motion of the moon, and those connected with the moons of Jupiter. It was his knowledge of physical principles to which he owed his wonderful scientific sagacity, which was also shown in many departments of physics, as in the construction of calorimeters. In his investigation of the discrepancies between theoretical and observed velocity of sound, his calculations for barometrical measurement and for atmospheric refraction, as well as tidal phenomena, he exhibited distinguished pre-eminence. In his numerous works, however, Laplace failed to refer to the labors of his predecessors and contemporaries, which makes it difficult for the student to distinguish between his own work and that of others, and on this account some have looked upon him as a compiler quite as much as a discoverer. In one important particular he fails to give credit to his great contemporary Lagrange, and refers to one of his most splendid mathematical solutions as being a formula (No. 21 of the second book) of the *Mécanique Céleste;* and the works of other mathematicians are overlooked, while references to his own are extremely numerous; but for all this it is remarked by mathematicians that any one of his original researches would place the stamp of mathematical genius upon any man. There is a translation of the *Mécanique Céleste*, by Nathaniel Bowditch (2 vols., Boston, 1829). See Bowditch; and Mrs. Somerville's *Mechanism of the Heavens* is a synopsis of a portion of that work. Laplace's *Théorie Analytique des Probabilités*, the most profound investigation of this important subject which has ever been written was first published at Paris in 1812, and again in 1820, with supplements. He died after a short illness, and it has been said that his last words were: "What we know is of small amount; what we do not know is enormous;" but this has been denied, and it is said that his last words were spoken in the presence of Poisson, his favorite pupil, to whom his family had appealed to get him to speak. Poisson, after saluting him, delivered some news which had been received from Germany by the bureau of longitudes in regard to some verifications by Bessel of theoretical discoveries of Laplace upon Jupiter's satellites. He opened his eyes and said, "Man pursues nothing but chimeras,' and never spoke again.

LAP'LAND. The territory still known under this name does not constitute a separate political autonomy, but is included under the dominions of Sweden and Norway, and of Russia. Lapland, or the land of the Lapps, which is called by the natives Sameanda, or Somellada, occupies the n. and the n.e. portions of the Scandinavian peninsula, and the extreme north-western districts of the Russian dominion, within the grand duchy of Finland. Norwegian Lapland is included under the provinces of Norrland and Finmark; Swedish Lapland, under North and South Bothnia, and divided into Torneä, Luleä, Piteä, Umeä, Aselä Lappmark; Russian Lapland, under Finland, in the circles of Kemi and Kola. Norwegian Lapland comprises an area of nearly 26,500 sq.m., with a native pop. of 5,000; Swedish Lapland, an area of 50,600 sq.m., with 4,000 inhabitants, and Russian Lapland, an area of 11,300 sq.m., with a pop. of 8,800. These numbers

refer merely to the true Lapps, in addition to whom there are Fins, Swedes, Norwegians, and Russians, settled in various parts of the Lappish territory, whose respective numbers probably bring the pop. of the several parts to about the following figures—viz., for Norwegian Lapland, about 50,000; for Swedish Lapland, about 14,000; and for Russian Lapland, about 60,000; but the boundaries of these divisions are so loosely defined and their areas and populations so variously given by different writers, that it is difficult to arrive at an accurate estimate of either. The climate of the Lappish territory is extremely cold for nine months of the year; while the excessive heat of July and Aug., when in the northernmost parts the sun never sets for several weeks, is only separated from the cold seasons by a short spring and autumn of a couple of weeks. The general limit of the cereals is 66° n. lat.; but barley can be grown as far n. in Lapland as 70°. The country is covered over a considerable part of its surface with forests, consisting chiefly of birch, pine, fir, and alder, and having an undergrowth of lichens and mosses, which supply abundant food for the herds of reindeer which constitute the principal sources of wealth to the inhabitants. Many elevated tracts are, however, entirely destitute of vegetation, and consequently uninhabitable.

The Lapps or Laplanders, who are classed ethnologically in the same family as the Fins, Esthonians, and Livonians, and who occupy the most northern parts of the Scandinavian peninsula, are distinguished, in accordance with the nature of their pursuits, as the *Soelappen* and the *Boelappen*, or the sea-faring and land-tilling Lapps. They were originally all nomadic; but the difficulty of finding sufficient food within the limited space to which the increasing civilization of the neighboring people had gradually restricted them, has compelled some of the tribes to settle near the larger rivers and lakes, where they follow the pursuits of fishing and hunting with considerable success. They show great skill as marksmen, and regularly supply the large annual markets of Vitangi and Kengis with game and skins, which are sent by Torneä to Stockholm, where they find a ready mart. The Lapps, who call themselves the *Sami* or *Sahmelads*, are a physically ill-developed, diminutive race, with small eyes, low forehead, high cheek-bones, pointed chin, and scanty beard. They are, however, neither wanting in mental capacity nor manual dexterity; and in the seminary for Lapp teachers at Trondenaes, in the district of Senjen, several of the students have distinguished themselves by their extensive acquirements. In the mythical sagas of Scandinavia the Lapps are represented as an inferior race, distinguished only for craft and treachery, and addicted to practices of sorcery. They are regarded, in accordance with the same authorities, as the original occupiers of the whole of Scandinavia, from the fertile and more southern portions of which they were in ancient times driven forth by the superior, god-descended race of Odin, who banished them to the inhospitable regions in which they are now circumscribed. Their tendency to deceit is probably in a great measure to be attributed to the inferior position in which they are kept by the Norwegians, Swedes, and Russians, near whom they live, for they are honest and strongly attached to their own people and country; and although they are still superstitious and credulous, they are not devoid of religious sentiment. They conform to the Christian faith of their neighbors—the Norwegian Lapps belonging to the Lutheran, and the Russian Lapps to the Greek church. The Bible has been translated into their own language, which is divided, like that of all nomadic tribes, into numerous dialects, whose many affinities and differences have of late years attracted much attention from northern and German philologists. The number of the Lapps probably falls below 20,000 (see above), of whom about half are included in the population of Sweden and Norway, and half within the Russian dominions. The reindeer is the chief source of wealth, supplying the people with most of the articles of food and clothing which they use. Their dwellings consist either of conically shaped mud-huts, raised on stakes, and almost impervious to light and air, or of hide-covered tents. Towns or villages are unknown amongst them. The contempt with which they are regarded by the tall, well-developed Norwegian peasants hinders all amalgamation between the races, while their peculiar habits, and the tenacity with which they cling to their own customs, tends still more to isolate them from the neighboring nations.

LA PLA'TA. See ARGENTINE REPUBLIC.

LA PLA'TA, a co. in s.w. Colorado; formed in 1874; has for its southern border the state line of New Mexico, and that of Utah on the west. It is drained by the Uncompahgre river the Las Animas and the Rio Mancoos, Rio La Plata, and Los Pinos, affluents of the San Juan. It holds also the head-waters of the Rio Grande, and numerous small creeks; area about 7,000 sq. miles. It is traversed by the Sierra San Miguel mountains and the Sierra La Plata, the latter having an altitude of 13,000 feet. It contains the Uncompahgre peak of the Sierra San Juan, with an ascent of 14,235 feet. Dense forests of evergreen cover the long slopes of the mountains, which are divided by cañons thousands of feet in depth. It includes Ute peak, 40 m. w. of Parrott City, towering to a height of 9,884 feet. It is a rich mining region, containing granite, coal, copper, galena, and gold. In the s.w. corner, bordering on Utah and New Mexico, is the Ute reservation; 300 sq. miles; pop. '80, 1110. Seat of justice, Parrott City.

LA PLATA, RIO DE. See PLATA, RIO DE LA.

LA PORTE, a co. in n. Indiana, having a soil of great fertility, watered by the Kankakee, Little Kankakee, and Gallien rivers; about 580 sq.m.; pop. '80, 30,976—23,802 of American birth. The surface is diversified by level plains and groves of timber, with prairie land productive of cereals and adapted to the raising of stock. Wool, maple-sugar, sorghum, honey, and pork are among the staple products. Number of farms in '80, 2,368; average, 123 acres. Orchard product, $36,334. Value of all live stock, $1,082,302. Along the Kankakee river are broad marshes, lying in the s.e. and southern portion, separating it from St. Joseph and Stark counties, and it has a lake shore boundary of some extent on the n.w. corner. It is intersected by the Pittsburg, Fort Wayne and Chicago railroad, the Lake Shore and Michigan Southern, the Louisville, New Albany and Chicago railway, and the Indianapolis, Peru and Chicago railroad. Number of manufacturing establishments, 155, employing 1,632 hands, with a capital of $1,201,910, and annual product of $3,393,862, engaged in the manufacture of agricultural implements, brick, carriages, iron castings, saddlery and harness, tin, copper and sheet-iron ware, and woolen goods. It has breweries and several flour and saw mills. Assessed value real and personal estate in '80, $12,195,570. Seat of justice, La Porte.

LA PORTE, a flourishing t. in the n.w. of Indiana, United States, 12 m. from lake Michigan, and at the junction of several important railways. It contains 11 churches, a medical college, 3 newspapers, and large foundries, machine-shops, and manufactories. Pop. '70, 6,581.

LA PORTE (*ante*), a city in n.w. Indiana, with surroundings of great natural beauty, making it a popular summer resort. It is in the near neighborhood of 7 picturesque lakes, navigable by steamboats, and being a junction of the Lake Shore and Michigan Southern railroad with the Indianapolis, Peru and Chicago railroad, it has every facility for transportation and passenger accommodation. It is 59 m. e.s.e. of Chicago, 27 m. w. of South Bend, and 148 m. n.w. of Indianapolis. It contains a court-house, 4 banks, three weekly newspapers, a Roman Catholic seminary, Holly water-works, excellent public schools, and a public library of 3,000 volumes. Its manufactures are extensive, furnishing brooms, chairs, carriages, woolen goods, and agricultural implements. It contains the railroad repair shops, and several planing and saw mills. Pop. '80, 6,195.

LAPPENBERG, Johann Martin, a German historian, was b. July 30, 1794, in Hamburg. He studied medicine at Edinburgh, but afterwards devoted himself to historical and political studies. He resided for some time in London, and afterwards studied law and history in Berlin and Göttingen. He became the representative of his native city at the Prussian court in 1820, and in 1823 was appointed archivist to the Hamburg senate, an appointment which led to his discovery of many valuable historic records which were supposed to have been lost. In 1850 he represented his native city at the diet of Frankfort. One of his principal works is a *Geschichte von England* (2 vols. Hamburg, 1834–37; with continuation in 3 vols. Hamburg 1853, and Gotha, 1855–58, bringing down the history to the end of Henry VII.'s reign); the first volume of which has been translated into English by B. Thorpe, with the title of *A History of England under the Anglo-Saxon Kings* (2 vols. Lond. 1845), and the second with that of *A History of England under the Norman Kings* (1 vol. 1857). He was the author also of the following works, which are remarkable for the care and research which they display, viz., *Urkundliche Geschichte des Ursprungs der deutschen Hansa* (2 vols. Hamburg, 1830); *Die Geschichte Helgolands* (Hamburg, 1831); also an edition of Ditmar of Merseburg, and many valuable works relating specially to Hamburg and Bremen. He died in 1865.

LAPPS. See Lapland, *ante*.

LAPRAIRIE, a co. in s.w. Quebec, Canada, has a fertile soil, being watered by several streams furnishing convenient water-power, and separated in the s.e. from Richelieu river by the small co. of St. John. The Chateaugay river empties into lake St. Louis in the extreme n.w., and for its n. and n.w. border the waters of lake St. Louis are met by the St. Lawrence river, which also receive the Ottawa river, by two channels from the w. around the little island of Perrot; 173 sq.m.; pop. '81, 11,436—1439 Indians. In the extreme n. the Victoria tubular bridge spans the St. Lawrence river at the terminus of the St. Lambert division of the South-eastern railway, which forms its eastern boundary line, the Rouse's Point division of the Grand Trunk railway crossing the n.w. corner. It contains a settlement of the Iroquois tribe of Indians, called Caughnawaga, on the s. shore of lake St. Louis, opposite Lachine, which is a point of considerable commercial importance, being a rendezvous for steamers on all the navigable lakes and rivers, including the Ottawa line, and those of Kingston, Toronto, and Hamilton. Between this point and Montreal, 8 m. above, are the celebrated Lachine rapids. In 1836 the first Canadian railway line, now a matter of history only, was in successful operation between Laprairie, conneeted by ferry with Montreal, and the town of St. Johns. Seat of justice, Laprairie.

LAPSE. A legacy is said to lapse if the legatee dies before the testator; for as a will only operates from the death of the testator, and at the time that legatee is dead, the legacy lapses; i.e., falls into and becomes part of the residuary estate. So as to a devise. See Legacy.

LAPSE (*ante*). A legacy may lapse in some cases when the legatee is alive at the time of the testator's death, as when a legacy being limited to A. B., to take effect when he reaches the age of 21 years, he dies before that age. At common law there was this distinction between a lapsed devise of real property and a lapsed bequest of personal property, that a lapsed devise passes to the heir-at-law in the absence of provision to the contrary in the will, while a legacy falls into the residue and passes to the residuary legatee, or, in case none is named by the will, to the next of kin. A lapsed devise or bequest should not be confounded with a void devise or bequest. The former occurs where the donee is dead at the time the will takes effect, i.e., at the death of the testator; the latter when the donee is dead or from any other cause incapable of taking at the time the will was executed. Where the devise is made to issue of the devisor, and the devisee is dead leaving issue, the devise will not lapse unless an intention to that effect be found in the will.

LAPSED (*lapsi*), the designation applied, in the early centuries of the Christian church, to those who, overcome by heathen persecution, did not continue faithful to the Christian religion. Their number was most considerable, when, after a long time of peace, the first general persecution under Decius began; but those who saved themselves by flight were reckoned among the lapsed, although their case was not regarded as equally bad with that of those who sacrificed to idols. The lapsed were at first punished by excommunication, and their reception into the church again was strenuously resisted; but in the 3d c. a milder course was generally adopted with regard to them. The treatment of the lapsed was one of the practical questions most earnestly discussed in the early church.

LAPWING, *Vanellus*, a genus of birds of the family *charadriadæ* (plovers, etc.), differing from the plovers chiefly in having a hind-toe, which, however, is small. The nasal grooves are also prolonged over two-thirds of the beak.—One species, the Common Lapwing, Crested Lapwing, or Peewit (*V. cristatus*), is a well-known British bird. It is also a native of almost all parts of Europe, and of some parts of Asia and of Africa. It is found in Bengal, in China, in Japan, and in Iceland; but it is not a native of America. It is not quite so large as a pigeon, and has the head surmounted with a beautiful crest. The head and crest are black; the throat black in summer, and white in winter; the back is green, glossed with purple and copper color. The name lapwing is derived from the sound which the wings make in flight; the name peewit (Scottish *peesweep*), with the French *dixhuit*, the Swedish *wipa*, the Danish *kivit* and *vibe*, the old English *wype*, the Greek *αἴξ*, etc., from the plaintive note; the local Scottish *teuch-head* (tufthead), from the crested head. The lapwing is very plentiful in moors, open commons, and marshy tracts, in pairs during the breeding season; and in winter in flocks, chiefly on the seashore. Its artifices to prevent the discovery of its nest are very interesting. The nest is little more than a mere depression in the ground, and the full complement of eggs is usually four; but if some are taken away, the bird goes on laying, an instinct of which the egg-gatherers take advantage. The eggs are esteemed a great delicacy, and great numbers are sent to the London market, under the name of *plovers' eggs*, from the marshy districts of England. The bird itself is also highly esteemed for the table.—A pet lapwing in a garden is of great service in preventing the too great increase of worms and slugs.—Some species of lapwing have wattles at the base of the bill.—The Teru-tero of South America (*V. cayanensis*), a species with spurs on the wings, abounds on the pampas of South America, is noisy on the approach of travelers, like the common lapwing, and its eggs are likewise in the highest esteem as a delicacy.

LAR, an important t. of Persia, capital of the province of Laristan, is situated on a well-wooded plain, at the foot of a ridge of hills, 60 m. from the Persian gulf, and 180 m. s.s.e. of Shiraz. The bazaar of Lar is said to be the finest and most elaborate in Persia. Pop. 12,000, who manufacture swords, muskets, and cotton-cloth.

L'ARAISH, or Larache. See El Araish.

LARAMIE, a co. in e. Wyoming, separated from Dakotah by the state line and the Black Hills, and from Nebraska by its frontier, the two constituting its e. boundary. The territory of Montana lies at the n., and Colorado on the s.; about 14,000 sq.m.; pop. '80, 6,409—5047 of American birth. It is intersected in the s. portion by the Union Pacific railroad with branches to Denver. It is watered by the Cheyenne river, an affluent of the Missouri, the North Fork and the South Fork, the Little Powder river, and numerous creeks and small rivers in the n., and in the s. the Niobrara river, the North Platte, Laramie, and their affluents. The n.w. portion is occupied by the Sioux Indian reservation, and the Black Hills belonging to the Ogallalla Sioux. In the s. is the old trading post of fort Laramie, and near the s. border fort Russell at Cheyenne. A considerable portion of the elevated surface of the county spreads out into what are called the Laramie plains; in other sections rising abruptly into buttes, or stretching away into the long ranges of the Laramie mountains. The soil of the bench-land, and in some localities along the river bottoms, has every element of fertility, and the table-lands are adapted to stock-raising. It had in '80, 28 manufacturing establishments employing 118 hands; capital, $77,870; annual product, $253,356; engaged in the manufacture of lumber, railroad ties, boots and shoes, clothing, tin, copper, and sheet-

iron ware. It has several machine-shops, including the repair shops of the Union Pacific railroad. Since 1874 it has been rapidly settled by miners and prospecting parties; the Black Hills having developed mines of gold, carboniferous limestone, lead, and other minerals. The gold is found in connection with quartz. Harney peak rises to an altitude of 7,403 ft. above the level of the sea. The verdant valleys in this region furnish excellent pasturage, and are famous for their good water. The hills are covered with evergreen trees of fir and pine, with willows along the water-courses. Pop. '82, 8,200.

LARAMIE CITY, on the Union Pacific railroad, w. of the Laramie range of the Rocky mountains, in Albany co., Wyoming territory; 7,122 ft. above the sea, and 57 m. by rail n.w. of Cheyenne; pop. '83, 4,000. It was laid out in 1868 when the railroad was being surveyed across the Laramie plains, which stretch away on all sides from it, and by their excellent pasturage furnish the basis of a great cattle business for Laramie city. It is also the most convenient point for distributing merchandise from the railway to a large extent of sparsely settled mountain and valley, mining and grazing country beyond the Laramie plains, to which roads radiate from the town. From a cluster of shanties in 1868, mostly saloons and gambling-houses, standing like a forlorn-hope in the center of a houseless and treeless plain, it has become a thriving city with broad streets and trees planted to shade them, watered by a stream from the mountains, with good business blocks, hotels, schools, 2 daily newspapers, churches, banks, a cattle exchange, numerous comfortable residences, and a goodly proportion of educated and refined people. The Union Pacific railroad has extensive machine and repair shops here. Laramie city is noted as the first place in America in which women were summoned by law to form a jury.

LARAMIE MOUNTAINS, the eastern and lower divide of the Rocky mountain range crossing the lat. of 43°, and bounding the Laramie plains on the n.e. and east. This range is connected with the Big Horn mountains n.w. and the Black Hills n.e. "by low anti-clinals extending across the prairie, the most complete and beautiful to be found in the Rocky mountain region." Geologically, the Laramie mountains are made up of red syenite with fossiliferous strata, and outcrops of carboniferous triassic, jurassic, cretaceous, and in some places lignite tertiary; "the beds inclining from a central axis at different angles." Coal is found in several places in these mountains. The Platte river and its branches pierce the range in their flow eastward. Height from 7,000 to 9,000 feet.

LARAMIE PLAINS, in Wyoming territory, lat. 43°, long. 106° w. from Greenwich; an elevated basin of undulating prairie having an average elevation of more than 7,000 ft. above the sea, bounded on the e. by the Laramie mountains and on the w. and s.w. by the Medicine Bow mountains or main divide of the Rocky mountain chain; with an area of 4,000 to 5,000 sq.m.; and drained by the Big and Little Laramie and Medicine Bow rivers. The surrounding mountains are less high and rugged than those of the same range in Colorado, and its climate is remarkable in permitting the growth of the most nutritious grasses on so elevated a plain. Grazing is the great business on these plains. The usual winter snow-fall is not heavy, so that it is not only an admirable pasturage in summer, but a place where it is possible for cattle to live through the winter on the dried grass which they find where the snow is blown off the swells of the prairie. Here for many years the herdsmen of the w., n., and s. have been accustomed to drive their half-starved stock from the far interior valleys and fatten them for the fall market on the growing grass from June till Sept., when they would drive eastward. Now graziers have pre-empted or bought the springs, or sections of land along the water-courses, and even large tracts of the plains, which are fenced with barbed wire in three-strand fencing; so that private ownership and jurisdiction have largely taken the place of the roaming system of herding. Laramie City is the home of most of these owners—many of whom are men of education and represent a large eastern non-resident ownership that furnishes much of the capital used to buy stock, land, and fencing. The annual increase of cattle is about 40 per cent. The business is uniformly profitable on these plains, but ownerships change often, the lonely character of the business giving the successful a desire to remove to more populous regions again. Cattle form by far the greater part of the stock on these plains, and the old Texas wild long-horned cattle are rapidly giving way to crosses with the finest Durham and other blood, adding to the weight and fattening qualities of the stock, and to its docility. Sheep are being introduced into the hills; but, requiring more care than cattle, and being subject to loss from wolves and cayotes, that branch of herding is in its infancy. It is a remarkable peculiarity of cattle-herding on these plains, and also on those e. of the Laramie range, that after the fall "round-up" the cattle are left to wander at will for hundreds of miles to pick a living for themselves; and the owner may spend his winters in the east and find the animals just as well at the spring "round-up" as if they had been watched and herded.

Although the cereals may sometimes and in some places be grown on these plains, the season is too short between severe frosts to make a crop reasonably certain; and as to vegetables like potatoes, although they are grown at fort Saunders, and other points on the plains, it is only as an experiment, and not as a profitable culture. Three succes-

sive months without a severe frost are unusual, notwithstanding genial spring, summer, and autumn weather is experienced through eight months.

LARBOARD, an obsolete naval term for the left side of a vessel, *looking forwards*. From its liability to be confused by the steersman with the not very different sound, "starboard," the word was a few years ago officially abolished, and the expression "port" arbitrarily substituted. The terms *starboard* and *larboard* were originally Italian —*questo bordo*, this side (the right); and *quello bordo*, that side (the left); which were contracted into *'sto bordo* and *'lo bordo*, and finally became starboard and larboard. The word *port* is said to be an abbreviation of *porta la timone*, "carry the helm," suggesting the analogy of porting the arms on the left hand.

LARCENY is the technical legal term used in England and Ireland to denote the crime of stealing. Simple larceny means larceny unaccompanied with other crimes or circumstances of aggravation. Larceny is defined as an unlawful taking of things personal, with intent to deprive the owner, and without his consent. On each word and phrase of this definition many commentaries have been written; but as everybody understands what theft is, it is scarcely necessary to enter into detailed explanations as to the variety of circumstances attending its perpetration. The common law, which was very defective in not mentioning many subjects which are now capable of larceny, such as title-deeds, wills, pigeons, dogs, oysters, vegetables, fruits, fixtures, etc., has been amended by various statutes, the provisions of which have been nearly all consolidated in the recent act 24 and 25 Vict. c. 96. An ancient doctrine of the common law was that carriers, trustees, etc., could never be convicted of larceny, because they get the possession of the goods lawfully, in the first instance; but now these persons may be convicted of stealing, like others. Formerly, there was a distinction between petty larceny and grand larceny, according as the value of the thing stolen was under or above twelvepence; and the punishment was more severe in the latter case. The distinction has been abolished, and in all cases the crime of larceny is felony, though there are certain things, such as fruit, vegetables, hares, etc., the taking of which, though unlawful and often called stealing, is not treated as such, but is punished by a moderate fine or imprisonment. Whoever corruptly takes a reward under pretense of assisting in recovering stolen property, unless he use due diligence to cause the offender to be brought to trial, is guilty of felony, and liable to seven years' penal servitude, or two years' imprisonment. Whoever shall publicly advertise a reward for the return of stolen property, stating that no questions will be asked, or promising to return to pawnbrokers or others any money advanced on such property, and also whoever shall print or publish such advertisement, shall forfeit £50 to any person who will sue for the same.

The punishment of larceny has varied in this as in all countries. In the Jewish law, it was punishable by fine and satisfaction to the owner. At Athens, it was converted from a capital offense into an offense punishable by fine. Our Saxon laws punished larceny, if the thing was above twelvepence in value, with death; but the law became subject afterwards to the softening effects of the benefit of clergy (q.v.). In 1827 the distinction of petty larceny was abolished, and every person convicted of simple larceny of any amount was made liable either to transportation or imprisonment; but later statutes have abolished the punishment of transportation, and now the general punishment for simple larceny, and for felonies punishable like simple larceny, is penal servitude for three years, or imprisonment not exceeding two years, with or without hard labor and solitary confinement, and in the case of a male under 16, with or without whipping—such whipping to be administered by a birch-rod, and not more than twelve strokes. In case of previous offenses, the term of penal servitude may be extended to seven or ten years. In some cases considered to be attended with great aggravation, as stealing linen, woolen, silken, etc., goods while in process of manufacture, if of the value of ten shillings, the term is increased to 14 years' penal servitude. In stealing cattle, the term is also 14 years, or imprisonment for two years. Larceny in a dwelling-house of money or goods above five pounds in value, is subject to 14 years' penal servitude, or two years' imprisonment; and the same is the punishment, whatever be the value, if by threats any one therein is put in bodily fear. The same punishment is awarded to larcenies in ships, wharfs, etc. Larceny from the person, when attended with personal violence, is called robbery. Robbery is felony punishable with 14 years' penal servitude, or two years' imprisonment. If it amount only to an assault with intent to rob, the punishment is two years' imprisonment, or three years' penal servitude. Again, if the assault or robbery was with offensive weapons, or in company with other criminals, or attended with personal violence, the punishment is penal servitude for life. Larceny by a clerk or servant is punishable with 14 years' penal servitude, or two years' imprisonment. Larceny of letters by post-office letter-carriers is punishable with seven years' penal servitude, or two years' imprisonment, and if the letter contained money, with penal servitude for life. Receivers of stolen property are also guilty of felony, and punished with 14 years' penal servitude or two years' imprisonment.

Besides the offenses under the head of larceny which are indictable, there are many cognate offenses which have been included in the same consolidation statute, but which are considered so far of a petty nature as not to merit the solemn punishment by indictment, and are left to be punished summarily by justices of the peace. Thus, some

offenses relating to wild animals and game are so treated; for example, hunting, carrying away or killing deer in the uninclosed part of a forest or park is punishable by justices with a fine of £50; and persons in possession of deer-skins, and not accounting for them, or setting snares for deer, incur a penalty of £20. Taking or killing, or setting snares unlawfully for hares or rabbits in inclosed ground by day, subjects the party to a penalty of £5. Stealing a dog is subject to a penalty of £20 over and above the value of the dog; and having a stolen dog or its skin in one's possession, subjects to a penalty of £20. Stealing birds, beasts, or other animals ordinarily kept in a state of confinement, or for any domestic purpose (not being fit for food), or willfully killing the same, with intent to steal, subjects to a penalty of £20, besides the value, or to six months' imprisonment. Killing or wounding house-doves or pigeons subjects the party to a penalty of £2, besides the value of the bird. Taking or destroying fish in a stream or water which is private property, subjects the party to a penalty of £5, besides the value of the fish; and angling in the same induces a penalty of £2, besides seizure of the fishing-tackle. Stealing trees and shrubs or underwood worth 1s., subjects the party to a penalty of £5; so does stealing or destroying fences, or posts, wires, etc., used as such. Stealing fruit or vegetables from gardens, etc., subjects the party to a penalty of £20, besides the value, or to six months' imprisonment. Stealing cultivated roots or plants used for the food of man or beast, or for medicine, growing in fields, etc., subjects the party to a fine of 20s., besides the value, or to one month's imprisonment. Having shipwrecked goods knowingly in one's possession, or exposing the same for sale, subjects to a penalty of £20, besides the value, or to six months' imprisonment. See LOST PROPERTY.

In Scotland, theft is distinguished into trifling theft or pickery, which is punishable with fine, imprisonment, or whipping. Simple theft was never a capital offense, unless aggravated, as theft by a trustee, theft of cattle, or of children. The punishment of theft in Scotland is left very much to the discretion of the court.

LARCENY (*ante*) is the wrongful taking and carrying away by one person of the personal property of another, with a felonious intent to convert such property to his own use against the consent of the owner. By the common law larceny was either compound, i.e., the taking and carrying away with felonious intent of personal property from the person or house of the owner; or, otherwise, simple. Simple larceny was called grand larceny where the value of the stolen property was more than twelve pence; and petit where the value was less. *What may be the subject of larceny?* Only personal property can be the subject of larceny. For injuries to the realty a remedy must be sought in trespass. Thus, if one enter upon another's premises and sever and carry away growing crops from the soil or fruit from the trees, he is not guilty of larceny, but is chargeable in trespass for goods carried away; but if an interval elapse after the severing and acts of trespass, and he come upon the premises and carry away the property, now detached from the realty, he is guilty of larceny if other necessary elements of the offense, as intent, etc., concur. By the common law undomesticated animals (*feræ naturæ*) were not the subject of larceny; nor even when domesticated unless their flesh be used for food, so that there was no such right of property in a dog, for instance, as that larceny of him could be committed. The property taken must have some value, however small; but the common law refused to recognize any value or to make assignable evidences of debt or mere rights to the recovery of debt, so that there could be no larceny of account-books, or notes, or mere personal securities of any kind. But it is otherwise by statute law, which has also removed in most of the United States the distinction between different degrees of larceny, wherever such distinction has obtained. *What constitutes larceny?* The property must be actually taken and carried away; must be in the absolute possession of the thief; the taking and carrying must be against the consent of the owner, and must be accompanied by a simultaneous felonious intent at the time the property is taken. Every larceny includes a trespass, i.e., an unlawful act, with force real or implied, to another's property, so that the intent necessary to constitute that offense really comprehends two separate intents, viz., an intent to commit a trespass upon personal property of another, and an intent to deprive him of his property. As trespass is a necessary part of larceny, and possession on the part of the owner is necessary in order to maintain an action of trespass, there can be no trespass against, and consequently no larceny from, an owner not in possession of the property taken. Thus, a common-carrier does not commit larceny if he steal a bundle which has been intrusted to him, for he and not the owner has the legal possession of the property as a result of his contract with the owner. The carrier having possession of, and a special property in, the goods, cannot commit trespass. But if he tear the bundle open and steal goods contained in it he commits larceny; for by breaking open the bundle he terminates his contract with the owner and loses his right to the possession of the goods, the taking and conversion of which added to his act of trespass, make him guilty of larceny. According to this rule, if a carrier takes the whole bundle he does not commit larceny; it is otherwise, if he break the bundle open and carry off a part of its contents. A servant who is intrusted by his master with the care of goods has no legal possession, and is chargeable with larceny of such goods. A special property with possession, such as that of a bailee makes an ownership sufficient to charge with larceny any person taking and carrying away

the personal property over which such ownership extends. Thus, the finder of lost goods is answerable only to their rightful owner, and has a full title as against others; and one stealing stolen goods from a thief is chargeable with larceny. But a finder of stolen goods who subsequently converts them to his own use is not chargeable unless at the time of taking he had an intent to permanently deprive the owner of his property. The taking necessary to constitute larceny must be against the owner's consent, and if such consent be had, though fraudulently gained, there will be no larceny, but an obtaining of goods by false pretenses. But it has been held that there is a distinction between the cases of an owner who by fraudulent representations is induced to transfer his goods, and who intends and expects to be divested of his rights of property in them, and the case of an owner who parts for a time, as he supposes, with his property; while at the same time the person who gets possession of the goods intends to convert them to his own use and to deprive the owner permanently of them. It is held that the latter case may be larceny.

LARCH, *Larix*, a genus of trees of the natural order *coniferæ*, differing from firs (*abies*)—of which, however, some botanists regard it as a mere subgenus—in having the scales of the cones attenuated at the tip, and not falling off from the axis of the cone when fully ripe, and the leaves deciduous and in clusters, except on shoots of the same year, on which they are single and scattered.—The COMMON LARCH (*L. Europæa* or *abies larix*) is a beautiful tree, growing wild on the mountains of the s. and middle of Europe, and found also in Asia, where it extends much further n. than in Europe, even to the limits of perpetual snow. The larch is not a native of Britain, and was not planted in any part of the island as a forest tree till the middle of the 18th c., when it began to be very extensively planted. Its introduction has changed the aspect of whole districts, particularly in Scotland. The perfectly erect and regularly tapering stem of the larch, its small branches, its regular conical form, and its very numerous and very small leaves, make its aspect peculiar, and very different from that of any other tree seen in Britain. It attains a height of 60 to 100 feet, and an age of 200 years. The male catkins are small and bright yellow, the female catkins generally purple and erect; the cones ovate-oblong, about an inch long, and erect. The larch grows rapidly, and is useful even from an early age; the thinnings of a plantation being employed for hop-poles, palings, etc.; the older timber for a great variety of purposes. It is very resinous, does not readily rot even in water, is not readily attacked by worms, and is much used in ship-building. It is, however, very apt to warp, and is therefore not well suited for planks.—Larch-bark is used for tanning, although not nearly equal in value to oak-bark. —In Siberia, where large tracts of larch forest are not unfrequently consumed by accidental fires, the scorched stems yield, instead of a resin, a gum similar to gum-arabic, reddish, and completely soluble in water, which is known as *Orenburgh gum*, and is used for cementing and in medicine, and, notwithstanding a somewhat resinous smell, even as an article of food. In warm countries, a kind of manna (q.v.) exudes from the leaves of the larch in the hottest season of the year, having a sweetish taste, with a slight flavor of turpentine. It is gathered principally in France, and is known as *Briançon manna*, or *L. manna*.—The larch woods of Britain have of late years suffered greatly from a disease, in which the center of the stem decays; the nature and causes of which are very imperfectly understood, although it seems to be sufficiently ascertained that those plantations are peculiarly liable to it which are formed where any kind of fir has previously grown, and those least so which are regularly thinned, so that the trees enjoy abundance of fresh air. The larch does not dislike moisture, but stagnation of water is very injurious to it, and thorough drainage is therefore necessary.—There are varieties of the common larch remarkable for crowded branches, for pendulous branches, and for other peculiarities, which are sometimes planted as ornamental trees.—The RED AMERICAN LARCH or HACKMATACK (*L. tenuifolia*), distinguished by very small cones not quite half an inch in length, is common in the northern parts of North America, and on the Alleghany mountains, often covering extensive tracts. It is a noble tree, much resembling the common larch, and its timber is highly valued.—The PENDULOUS LARCH, or BLACK AMERICAN LARCH (*L. pendula*), is another very fine North American species, with larger leaves. The HIMALAYAN LARCH (*L. Griffithsii*) abounds in the Himalayas, but is generally a small tree of 20 to 40 ft. high. Its cones are larger than those of the common larch. Its wood is very durable.

LARCH (*ante*). One of the chief differences between these conifera and the pines and firs is their deciduous character. The American larch, or *larix Americana*, inhabits North America from Virginia to Hudson's bay. It is called hackmatack in Canada, but in the middle, southern, and western states, tamarack. It sometimes grows to 70 ft. in height, but is generally much smaller. It is occasionally found on uplands, especially in its northern habitats, but in the middle and southern states it grows in moist soils and shallow swamps, often where the muck or peat is quite deep. It is a slender, beautiful tree, having horizontal branches, but its shade is not dense. The primary leaves are scattered, the secondary ones are many in a fascicle, and are developed early in the spring, as soon as the frost is out of the ground, from lateral, scaly, globular buds. They are at first of a light, yellowish-green, becoming, when mature, dark-bluish, and changing again in the fall to a yellow. The sterile catkins, erect, round, one-quarter of

an inch long, are borne near the ends of the branches. The fertile catkins are borne near the middle of the branches, half an inch in length, having a few scales, and of a crimson color during flowering. The ripe cone attains a length of about three-fourths of an inch. The distinction made in the article *ante* between red American (*L. tenuifolia*) and black American larch (*L. pendula*) is not maintained by most authors, who say that the difference is at most a variety, and is caused by difference in locality. The American larch is inferior to the European tree for ornamental purposes, the latter having more fully-leaved and pendulous branches, and cones one-half larger. The *larix Europœa* is indigenous to central Europe, and flourishes particularly in the Alps, where it is a fine timber tree. It has been transplanted in Scotland, and the plantations have yielded profitable returns. Those of the dukes of Athol are celebrated, 14,000,000 larches having been planted on an area of over 10,000 acres previous to 1826.

LARCOM, Lucy, b. Mass.; having passed most of her childhood by the sea-side, went to reside in Lowell, Mass., contributing with her companions in the mill to a magazine called the *Lowell Offering*. She passed some years as teacher at Wheaton female seminary, Norton, Mass., and at Bradford academy, pursuing the same vocation in Illinois, and subsequently editing *Our Young Folks*, a children's periodical, since merged in the *St. Nicholas*. She resides at Beverly Farms, Mass., a delightful summer resort, and contributes regularly to the leading periodicals of the day. The winter of 1878–79 she passed in Bermuda. Her writings are distinguished for a healthy moral tone. Prior to 1866 she published *Similitudes*, a volume of poems; in 1866, *Breathings of a Better Life;* in 1868, *Poems;* in 1874, *Childhood Songs;* in 1875, *Idyl of Work;* and more recently, *Roadside Poems*, and *Hillside and Seaside;* in 1879, *American Scenery*. She assisted the poet John G. Whittier in his compilation of *Child Life; Child Life in Prose;* and *Songs of Three Centuries*. She is quoted by the poet Henry W. Longfellow in his *Poems of Places*. She published (1883), *Wild Roses of Cape Ann*.

LARCY, Charles-Paulin Roger de Saubert, Baron de, b. France, 1805; a lawyer, and strong defender of royal legitimacy; author of a work on the *Revolution de la France;* a determined opponent of both republicanism and Bonapartism, yet a member of Thiers's first cabinet of conciliation under the last republic, resigning his position as soon as it became evident that Thiers' government meant republicanism. In all, a persistent agitator for the restoration of an effete order of things in France; made life-senator, 1877.

LARD, the fat of the hog. Until after the first quarter of the present century, lard was only used for culinary purposes, and as the base of various ointments in medical use. The enormous extent, however, to which pork was raised in America, rendered it necessary to find some other applications for so valuable a material, and large quantities were pressed at a low temperature, by which the stearine and oleine were separated. The former was used for candle-making; and the latter soon became a very important article of commerce, under the name of "lard oil," which was found to be a valuable lubricant for machinery. As much as 20,000 tons of lard, stearine of lard, and lard oil have been imported in one year, more than two-thirds of which were from the United States of America. The manufacture of stearine candles and fine oleine from palm oil, cocoa-nut oil, and various kinds of grease, by Messrs. Price & Co., and other large manufacturers, has greatly diminished the imports from America.

LARDNER, Dionysius, ll.d., a distinguished writer on physical science, was b. in Dublin, April 3, 1793, and first became known by his *Treatise on Algebraical Geometry* (Lond., 1823), and by a work on the *Differential and Integral Calculus* (Lond. 1825). In 1828 he was appointed professor of natural philosophy and astronomy in University college, London; and in 1830 he projected a sort of encyclopædia, consisting of original treatises on history, science, economics, etc., by the most eminent authors; and 134 volumes were accordingly published, under the general name of *Lardner's Cyclopædia*, between 1830 and 1844. Some of these volumes were from his own pen. A second issue of this work was begun in 1853. He published various scientific works, the most important of which are his "handbooks" of various branches of natural philosophy (1854–56). Lardner was also the author of the *Museum of Science and Art*, an excellent popular exposition of the physical sciences, with their applications. He died in Naples, April 29, 1859.

LARDNER, James L., rear-admiral U. S. navy; b. Penn., 1802; entered the navy as midshipman in 1820; was appointed lieut. in 1828, commander in 1851, capt. in 1861, commodore in 1862, and rear-admiral on the retired list in 1866. He commanded the frigate *Susquehanna* in the battle of Port Royal, exhibiting great skill and bravery, and winning the special commendation of rear-admiral Dupont.

LARDNER, Nathaniel, d.d., an eminent English divine, was b. at Hawkshurst, in Kent, in 1684, and studied first in London, and afterwards at Utrecht and Leyden. Lardner belonged to a body of English *Presbyterians*, who had become Unitarians. He died in 1768. Lardner was not a popular preacher; but his *Credibility of the Gospel History*, and his *Jewish and Heathen Testimonies*, have secured for him a permanent place among the modern apologists for Christianity. The last edition of his works, in ten volumes, appeared at London in 1828.

LARE'DO, a t. in s. Texas, founded in the 18th c. by Spaniards, and situated 165 m. s.w. of San Antonio, Texas (which occupies the site of old fort Alamo), and on the road from that place to Saltillo, in Mexico, near the scene of the battle of Buena Vista; pop. '80, 3,521. It is on the e. bank of the Rio Grande, which separates Texas from the republic of Mexico, and is navigable at that point; on the opposite bank is the town of Nuevo Larédo, settled by those who preferred to live on the Mexican side of the line. Some attention is paid to agriculture in the raising of Indian corn; but wool and hides are the chief products. Flowers of great beauty grow wild on the prairie. Grapes are a natural growth of the soil, also mulberry trees and the vanilla. Wild animals abound, and the smaller kinds of wild fowl. A lucrative trade is carried on with the interior. The climate is healthful, and free from extremes of heat and cold, allowing two crops of corn in the season, and adapted to the economical rearing of cattle and sheep. Mustangs roam the plains, and are brought into subservience. Fort McIntosh, a trading post, is in the immediate neighborhood. It has one church, 3 newspapers, and an Ursuline convent.

LA'RES, MA'NES, AND **PE'NA'TES** were tutelary spirits, genii, or deities of the ancient Romans. The derivation of the names is not perhaps quite certain, but the first is generally considered the plural of *lar*, an Etruscan word signifying "lord," or "hero;" the second is supposed to mean "the good or benevolent ones;" and the third is connected with *penus*, "the innermost part of a house or sanctuary." The Lares, Manes, and Penates do not appear to have been regarded as essentially different beings, for the names are frequently used either interchangeably or in such a conjunction as almost implies identity. Yet some have thought that a distinction is discernible, and have looked upon the Lares as earthly, the Manes as infernal, and the Penates as heavenly protectors—a notion which has probably originated in the fact that Manes is a general name for the souls of the departed, those who inhabit the lower world; while among the Penates are included such great deities as Jupiter, Juno, Vesta, etc. Hence we may perhaps infer that the Manes were just the Lares viewed as departed spirits, and that the Penates embraced not only the Lares, but all spirits, whether demons or deities, who exercised a "special providence" over families, cities, etc. Of the former, Manes, we know almost nothing distinctively. An annual festival was held in their honor, on Feb. 19, called *Feralia* or *Parentalia;* of the latter, Penates, we are in nearly equal ignorance, but of the Lares we have a somewhat detailed account. They were, like the Penates, divided into two classes—*Lares domestici*, and *Lares publici.* The former were the souls of virtuous ancestors set free from the realm of shades by the Acherontic rites, and exalted to the rank of protectors of their descendants. They were, in short, household gods, and their worship was really a worship of ancestors. The first of the Lares in point of honor was the *Lar familiaris*, the founder of the house, the family Lar, who accompanied it in all its changes of residence. The *Lares publici* had a wider sphere of influence, and received particular names from the places over which they ruled. Thus, we read of *Lares compitales* (the Lares of cross-roads), *Lares vicorum* (the Lares of streets), the *Lares rurales* (the rural Lares), *Lares viales* (the Lares of the highways), *Lares permarini* (the Lares of the sea), and the *Lares cubiculi* (the Lares of the bedchamber). The images of these guardian spirits or deities were placed (at least in large houses) in a small shrine or compartment called *ædiculæ* or *lararia.* They were worshiped every day: whenever a Roman family sat down to meals, a portion of the food was presented to them; but particular honors were paid to them on the calends, nones, and ides of the month; and at festive gatherings, the lararia were thrown open, and the images of the household gods were adorned with garlands.

LARGE. The longest note or mark of duration in ancient music; as, for instance, beginning with semi-breve, then breve, long, large; the proportion of time being as 1, 2, 4, 8. The breve is now the longest note in use, though its original signification did not indicate prolongation, but brevity of sound, the measure or unit of time in music having materially changed since the terms above given were in common use in the Gregorian music of the Roman church.

LARGESSE, money which, in early times, it was the practice to grant to heralds on certain state occasions, for proclaiming the style and title of the sovereign and his nobles. The regular fees, as recorded in one of the Ashmolean MSS., were: "At the coronacion of the king of England, c£ apparalled in scarlet. At the displaying of the kinge's banner in any campe, c. markes. At the displaying of a duke's banner, £20; at a marquis', 20 markes; at an earle's, 10 markes. The king marrying a wife, £50, with the giftes of the kinge's and queene's uppermost garments; at the birth of the kinge's eldest son, 100 markes; at the birth of younger children, £20. . The king being at any syge with the crowne on his head, £5."

LARGO, an Italian word, used in music, to denote the slowest of all the *tempi*, and especially in compositions where the sentiment is quite solemn. Larghetto is the diminutive of largo.

LARGS, a small t. on the coast of Ayrshire, Scotland, a favorite resort for sea-bathers, is beautifully situated on the firth of Clyde, on a pleasant strip of shore, backed by hills, 18 m. below Greenock. The population in 1881 was 3,079, but the number is greatly

increased in midsummer. Here, in 1263, Alexander III. of Scotland, in the course of a war between that country and the Norwegian colonies of Man and the Isles, defeated Hacon, king of Norway, who, with 160 ships and 20,000 men, had descended upon the coast of Ayrshire. The results of this battle were the immediate withdrawal of the invading force, and the abandonment within three years of the Norwegian pretensions to the Scottish islands.

LARI, a t. in s. Italy, in the vicinity of a number of walled cities, 14 m. s.e. of Pisa, and in the province of that name. It contains an ancient castle, and fortifications still in good condition; pop. 10,081. The country in its vicinity is divided into small farms of from 4 to 15 acres, planted with vineyards, and producing large quantities of red and white wine. Corn, rice, and olives are raised, also fruit of every kind, and chestnuts, which often take the place of bread. The Arno, having its source in the Apennines, clothes the neighboring pastures with constant verdure. The clear and mellow atmosphere invests the landscape with the rich warm tints for which Italy is celebrated. Near by are a number of salt springs, and mines remarkable for the abundance and richness of their copper ore; also quarries of alabaster, adding to its material wealth. The neighboring small ranges of mountains, sloping toward the Mediterranean sea, are dotted with groves of pine, oak, and beech, and near the base are woods of chestnut and holm-oak; the plains being shaded by groves of the cypress, orange, citron, carob, and palm.

LARICIO. See PINE.

LA'RIDÆ, a family of birds, of the order *palmipedes* or *natatores*, called *longipennes* by Cuvier, from the length of wing which is characteristic of them. They are generally capable of protracted as well as of rapid and graceful flight; all of them are sea-birds, although some resort to breeding-places at some distance inland, and some follow the course of rivers to very considerable distances from the sea. Some of them are the most oceanic of all birds, being often seen far from any shore. They generally take their prey either by a sudden descent to the water during flight, or whilst swimming, and are not good divers. The hind-toe is small and free; the bill is pointed or hooked, but destitute of lamellæ. Gulls, skuas, terns, petrels, shearwaters, albatrosses, noddies, skimmers, etc., belong to this numerous family, which has many representatives in all parts of the world. They prey chiefly on fishes and mollusks, and are in general ready to eat any animal garbage.

LARI'GOT, a stop of the organ, which is usually termed the "nineteenth." It is tuned an octave above the twelfth stop, or two octaves and a fifth above the diapasons. It has a single rank of metal pipes, and is found in some organs as one of the ranks of the mixture stops.

LARIMER, a co. in n. Colorado, separated from the North park by the Medicine Bow mountains, belonging to the Snowy range of the Rocky mountains on the w., and having for its n. boundary the territory of Wyoming; 2,000 sq. m.; pop. '80, 4,892—4,256 of American birth. The Cache la Poudre, rising in the Snowy range, flows s.e., emptying into the South Platte river, and Big Thompson creek, rising in Long's peak, in the extreme s.e., running e. into the same river, irrigate the country and afford water-power, which is utilized by flour and saw mills. In the e. section the country presents an undulating surface, and a rich soil along the river valleys, producing barley, oats, corn, wheat, and wool. Product of butter in '70, 34,190 lbs. Value of all live stock in '70, $240,430. Fine timber grows on the mountains, which are extensively covered with pine woods, but eternal snow settles on their summits. The scenery is magnificent. Lignite and silver are found. The height of Long's peak in the s.w. corner is estimated to be 14,271 ft. above the level of the sea. The Colorado Central railroad intersects the e. portion. Number of manufacturing establishments in '70, 7, employing 31 men, with a capital of $35,400; annual product, $66,000. Seat of justice, Fort Collins.

LAR'INÆ, a group of birds often separated as a sub-family of laridæ (q.v.), including the gulls proper, the typical genus of which is *larus* (a gull). A chief characteristic of this sub-family is the hooked projecting upper bill, and also the want of a curve at the base. The genus *larus* has a square tail, and contains the largest and best-known species; *rhodostethia* has a wedge-shaped tail, and *creagrus*, a forked tail, both of the last-named genera being inhabitants of the Arctic ocean. See GULL.

LARIS'SA (called by the Turks *Yenitschir*), a t. of European Turkey, in the province of Thessaly, and one of the most ancient and important in that territory, is situated on the Salembria (anc. *Peneus*), in lat. 39° 37′ n., and long. 22° 28′ east. It contains numerous mosques, from which arise many slender and dazzlingly white minarets. It carries on an important transit trade, with manufactures of silk and cotton goods, and Turkey-red dyeworks. Pop. 25,000. In ancient times it was celebrated for its bull-fights.

LA'RISTAN AND MOGISTAN, two maritime provinces of Persia, bounded on the s. by the Persian gulf and the gulf of Oman, and on the n. by the provinces of Farsistan and Kerman.

Larks and other Birds.—1. Head of weevil-lark (Alanta calandra). 2. Hooded lark. 3. Foot of lark (A. arvensis). 4. Kingfisher. 5. Magpie. 6. Night-jar. 7. Head and skull of green parrot. 8. Foot of pelican. 9. Stormy-petrel. 10. Rail. 11. Starling. 12. Secretary. 13. House-swallow. 14. Wall-swallow. 15. Swift. 16. Titmouse; *b*, Bearded Titmouse. 17. Toucan. 18. Trogon. 19. Vulture. 20. Wax-wing. 21. Wall-creeper. 22. Widgeon. 23. Woodpecker. 24. Pigeon. 25. Crested Wren. 26. Wryneck.

LA RIVE, Auguste de, 1801–73; was educated in chemistry and natural science by his father, and was appointed a professor in the academy of Geneva. In 1864 he was elected one of the eight foreign members of the French academy. He devoted himself to the study of electricity, and wrote *Traité d'Electricité Théorique Applicée* (Paris, 1854–58, 3 vols.).

LA RIVE, Charles Gaspard de, 1770–1834; b. Geneva, Switzerland; studied medicine and the natural sciences in England and in Edinburgh; in 1802 became professor in the academy of Geneva, and distinguished himself by researches in chemistry and natural history, and by his contributions on these subjects to the *Bibliothèque Universelle de Genève* and the *Bibliothèque Britanique.* Among his works may be noted: *Observations* upon the conversion of starch into sugar; and an *Essay on the Theory of Chemical Proportions, and the Chemical Influences of Electricity.*

La Rive, in the intervals of his scientific life, was much of a politician; was a member of the provisional council of Switzerland in 1813, which proclaimed a republic, and in 1817 was elected president of the council, from which he retired to his favorite studies. He was founder of the museum of natural history and the botanic garden of Geneva.

LARIX. See Larch.

LARK, *Alauda,* a genus of small birds of the order *insessores,* section *conirostres,* the type of a family *alaudidæ,* to the whole of which the English name is commonly extended. In this family, the bill, although stout, and nearly conical, is more lengthened than in buntings and finches. The toes are long, and separate to the base; the claws long and little curved, that of the hind toe generally very long. The true larks (genus *alauda*) have also long wings, and great power of flight. Many of them are birds of passage. In common with almost all the family, they nestle and seek their food—seeds, insects, worms, etc.—on the ground; and in admirable harmony with this mode of life, their plumage exhibits much uniformity of coloring, so that when on the ground they may not readily be noticed by their enemies. The lark family is very widely distributed over the world. The Common Lark, Field Lark, or Sky Lark (*alauda arvensis*), is one of the best-known British birds, and notwithstanding the tameness of its brown plumage, is a universal favorite, on account of the sweetness of its cheerful song, which it pours forth whilst soaring and floating in the air, and which every one associates with pleasant scenes and delightful days. It more rarely sings on the ground. It is in great repute as a cage-bird, and sings well in confinement, but flutters its wings whilst singing, as if still desirous of soaring in the air. It abounds chiefly in open but cultivated districts. It is common in most parts of Europe, but from the more northern parts it migrates southward on the approach of winter. It is also a native of Asia, and is a winter visitant of the n. of Africa. It is not found in America. It makes its nest generally in an open field, and often under shelter of a tuft of herbage, or a clod of earth; lays four or five mottled eggs, and generally produces two broods in a season. It is not truly gregarious in summer, but in winter large flocks assemble together; and at this season multitudes of larks are taken for the table in the s. of England, in France, and other countries. They are often caught by horse-hair nooses, attached to a long line of packthread, to which the nooses are fastened at distances of about 6 in., the line being pegged to the ground at intervals of 20 yards. This mode is most successful when the ground is covered with snow, and a little corn is scattered along the line. The clap-net (q.v.) and trammel-net (q.v.) are also employed by lark-catchers, and great numbers of larks are taken in some parts of England by dragging the trammel-net over the stubbles and pastures. *Twirling for larks* is a peculiar mode of turning to account the attractiveness which any glittering object possesses for these birds. It is a French practice. A piece of highly polished mahogany, or of some common wood inlaid with bits of looking-glass, is fastened on the top of a rod, so as to reflect the sun's rays upwards, and is made to twirl by means of a string. Larks are greatly attracted by it, congregate around it, and are readily shot in large numbers.—The Crested Lark (*A. cristata*), very similar in size and plumage to the common lark, but having the feathers of the crown of the head more distinctly developed into a crest, although a very common bird in many parts of Europe, and abundant near Calais, has very seldom been seen in Britain. The Wood Lark (*A. arborea*), a smaller species, not unfrequent in some parts of England, but rare in Scotland, is a bird of very delightful song, and usually sings perched on the branch of a tree. It frequents wooded districts. Its nest, however, is made on the ground.—The Shore Lark (*A. alpestris*), which has only in rare instances been found in Britain, inhabits the northern parts of Europe, Asia, and America, and is the only North American species. Its song is very sweet, and gladdens the visitor of such desolate shores as those of Labrador, where it breeds, amidst the tufts of mosses and lichens, with which the bare rocks are interspersed. It is a winter visitant of New England, and is sometimes seen as far s. as Georgia. The head has two erectile tufts of feathers, somewhat resembling those of horned owls. Black, white, and yellow vary the brown plumage of the shore lark.

LARKHA'NA, the capital of a district of its own name in Sinde, stands 145 m. n. of Hyderabad. It contains about 12,000 inhabitants, and manufactures silk and cotton, besides being one of the largest corn-marts in the country.

LARKSPUR, *Delphinium*, a genus of plants of the natural order *ranunculaceæ*, annual and perennial herbaceous plants, natives of the temperate and cold regions of the northern hemisphere. They have five sepals, the upper spurred; four petals, distinct or united into one, the two upper having spurs inserted into the sepaline spur; and 1 to 5 many-seeded follicles. Some of them are well known and favorite garden-flowers, as the UPRIGHT LARKSPUR (*D. Ajacis*), a native of Switzerland, and the BRANCHING LARKSPUR (*D. consolida*), a native of most parts of Europe, and a rather doubtful native of England. *D. glaciale* is one of the most alpine plants in the world.

LARMES, in heraldry. When the field is bestrewed with an indefinite number of drops of a blue color, it is said to be *gutté de larmes*, a nomenclature peculiar to British heraldry.

LAR'NACA, or LARNAKA (anc. *Citium*), a t. of Cyprus in n. lat. 34° 55′, and e. long. 33° 37′, near the s. coast of the island. It has a good roadstead, but the town wears a decayed and filthy aspect. The chief public buildings in Larnaca are the Greek church of St. Lazarus, a Roman Catholic church, and Franciscan monastery. Larnaca is the chief seat of the commerce of the island, and the residence of European merchants and consuls. There is regular steamboat communication with Constantinople, Smyrna, Alexandria, and Marseilles, and occasionally with England. There is an overland line of telegraph from Larnaca to cape St. Andreas, thence by submarine cable to Latakia, in Syria. The salt lakes in the neighborhood, alluded to by Pliny, are still worked. Forty years ago they were leased for £400 a year. Within recent years they yielded the government £40,000 a year. This revenue fell in 1879 to less than half this sum, in consequence of a rise of price in the salt, which was chiefly bought by the coast towns of Syria. Value of exports, chiefly of grain, cotton, silk, opium, salt, wool, umber, and locust beans, £318,625 in 1874; of imports, £100,262. The British occupation caused an influx of merchants, the result being a collapse in trade. Pop. about 10,000. Mounds of débris mark the site of ancient Citium. A bas-relief of the 8th c. B.C., with cuneiform inscriptions, was recently found here; and 600 gold staters of Philip and Alexander the great were discovered in 1870.

LARNE, a market and seaport t. of Ireland, in the co. of Antrim, on Lough Larne. A mail-steamer sails daily between Larne, which is connected with the Northern Counties railway, and Stranraer, in Scotland. Larne possesses two large flour-mills, and extensive bleaching-grounds. Pop. '71, 3,343.

LARNED, AUGUSTA. See page 895.

LARNED, BENJAMIN F., 1791–1862; b. Mass.; entered the army as ensign of the 21st infantry in 1813, and served with distinction through the war with Great Britain. He was brevetted captain for gallant conduct at Fort Erie, where he commanded a company, and on the reduction of the army in 1815 was retained as regimental paymaster. During the war with Mexico he served as deputy paymaster-general, and on the death of gen. Towson succeeded him as paymaster-general of the army with the rank of col., performing the duties of the office with unsullied integrity to the day of his death. At the outbreak of the rebellion his powers were overtasked in the reorganization of his department, and he died in Washington.

LARNED, SIMON, 1754–1817; b. Thompson, Conn.; served as an officer in the revolutionary war, and in 1784 settled at Pittsfield, Mass. He was a member of congress in 1804–5, and in the war of 1812 with Great Britain served as col. of the 9th infantry. After this he was sheriff of Berkshire county.

LARNED, SYLVESTER, 1796–1820; b. Pittsfield, Mass.; graduated at Middlebury college, 1813; Princeton theological seminary, 1816; ordained as a Presbyterian minister, 1817; and soon proceeded to New Orleans, where he produced a deep impression by his eloquence. A church was organized, of which he was chosen pastor, and a large church edifice was erected. In the summer of 1820 the yellow-fever raged in the city with great violence, and though urged to leave, he remained, ministering to the sick and dying until he was attacked with the disease and died. A memoir with a collection of his sermons was published by the Rev. R. R. Gurley.

LAR'NICA. See LARNACA, *ante*.

LAROCHEFOUCAULD. See ROCHEFOUCAULD, *ante*.

LAROCHEJAQUELEIN, DU VERGER DE, an old noble family of France. The name Du Verger is derived from a place in Poitou. Guy du Verger married, in 1505, the heiress of the seigneur of Larochejaquelein. Several of his descendants distinguished themselves as soldiers, after the beginning of the French revolution, by their strenuous efforts in the cause of the Bourbons.—HENRI, comte de Larochejaquelein, born 1772, was an officer in the guard of Louis XVI., and after Aug. 10, 1792, left Paris, and put himself at the head of the insurgent royalists in La Vendée. He signalized himself by many heroic deeds, and for a time successfully repelled the republican forces, but was defeated by gens. Westermann, Müller, and Tilly, Dec. 13, 1793, and escaped with difficulty. He raised a new body of troops, however, in Upper Poitou, but was killed in a battle at Nouaillé, Mar. 4, 1794.—His brother, LOUIS DU VERGER, marquis de Larochejaquelein, born 1777, emigrated at the commencement of the revolution; returned to France in 1801, but resisted all Napoleon's efforts to win him, and in 1813

placed himself at the head of the royalists in La Vendée. Louis XVIII. appointed him, in 1814, to the command of the army of La Vendée, and during the hundred days he maintained the royalist cause there, supported by the British. He fell in battle at Pont-des-Mathis, June 4, 1815. His wife, MARIE-LOUISE VICTOIRE, marquis de Larochejaquelein (b. 1772—d. 1857), published *Mémoires of the War in La Vendée*, of which she was an eye-witness (Bordeaux, 1855), which are of great value, and have gone through many editions.

LA ROCHELLE, a fortified seaport of Franee, capital of the department of Charente-Inférieure, on an inlet of the bay of Biscay, formed by the islands Ré and Oleron, 300 m. s.w. of Paris by railway. Its little harbor, which consists of an outer tidal basin, and an inner wet doek, is surrounded by fine quays and commodious docks, close to which lie the principal streets and squares. Many of the latter are regular and well built, and present a handsome appearance from the number of houses whieh are adorned with porticoes and baleonies. The publie buildings most worthy of notiee are the arsenal, the palace, the town-hall, the exehange, and the cathedral. Besides the fine promenade of the Plaee du Château, there are, outside the city walls, two extensive public gardens, known as La Promenade du Mail and the Champs de Mars. Ship-building is actively carried on, especially in connection with the Newfoundland fishing trade; and besides this branch of industry, and the manufaeture of coal brieks and cotton yarns, Rochelle has numerous glass-works, sugar-refineries, and distilleries for the preparation of brandy. Pop. '81, 20,028.—Roehelle, whieh was known till the 12th e. under its Latin name of *Rupella*, or Little Roek, of which its present name is a mere translation, originated in a colony of serfs of Lower Poitou, who, fleeing from the perseeution of their lord, settled on the rocky promontory between the oeean and the neighboring marshes, whieh had previously been oeeupied by fishermen only, but which rapidly increased in importanee under the new settlers. On the marriage of Eleanor of Aquitaine with Henry II. of England, Roehelle, as a part of her dowry, came into the possession of the English kings, by whom it was retained till 1224, when it was taken by the troops of the Freneh king, Louis VIII.; and although it was eeded to England at the treaty of Bretigny in 1360, in the subsequent wars it was retaken by Franee, under whose sway it has remained sinee 1372. As a stronghold of the Huguenot party, it underwent various attaeks and sieges during the religious wars of the Henries, in the latter half of the 16th c.; and on its final and uneonditional surrender to the royal troops in the time of Louis XIII., its old fortifieations were destroyed, and new lines of defenses subsequently ereeted by the great Vauban.

LAROUSSE, PIERRE ATHANASE, b. France, 1817; author of a great number of school-books designed to supplant the old routine of teaching "on the parrot plan"; and publisher and editor of the *Grand Dictionnaire Universel du XIX. Siècle*, the most elaborate biographieal eyelopædia in the Freneh language. The studies and published works of Mr. Larousse show an enormous industry. The sehool-books, to the formation of whieh the first part of his life was devoted, have been introdueed into the schools of France, and made a fortune for him, whieh he has used to establish his own flourishing publishing-house, and to extend the circulation of all his useful works.

LARREY, DOMINIQUE JEAN, Baron, a celebrated French surgeon, was born in 1766 at Baudéan, near Bagnères-de-Bigorre, studied medieine with his unele, Alexis Larrey, and attended the two hospitals, the Hôtel-de-Dieu and the Hôtel-des-Invalides, having previously served for a short time both in the army and navy. In 1792 he was appointed seeond physieian to the Hôtel-des-Invalides, and in 1793 aecompanied the Freneh army to Germany and Spain, making at this time the important invention of the *ambulance volante*, for the convenience of transporting the wounded. Napoleon summoned him to Italy in 1797, after he had been for a short time a professor in the medico-surgieal sehool at Val-de-Grâce; and he aecompanied the expedition to Egypt. In 1805 he was plaeed at the head of the medieo-surgieal department in the French army, and was created a baron of the empire, reeeiving also a considerable pension. He was wounded and taken prisoner at Waterloo, and at the restoration lost his rank and pension; the latter, however, was restored in 1818; and he continued to fill important and honorable offices till 1836, when he retired from that of surgeon-general of the Hôtel-des-Invalides. On May 15, 1842, he embarked for Algeria, having been appointed inspector of the military hospitals there, and while on his return, after having coneluded his labors, he died at Lyons July 24, 1842. Apart from the skill, talent, courage, and humanity shown in the course of his practice, Larrey has a high scientific reputation, and is the author of a number of very valuable books on various subjects connected with his profession, most of which have been translated into other languages. Larrey's works have been considered by eminent authorities to be "the conneeting link between the surgery of the last age and that of the present day."

LARTET, EDOUARD, b. at St. Guérand, France, 1801. He was distinguished for his researches in fossil paleontology and prehistoric anthropology. Of the former science he was for many years professor in the museum of natural history in Paris. He made numerous discoveries, among them the mammalian remains in the mioeene deposits of Gers, including skeletons of *mastodon angustidens*, and affording the first sure evidence of the existence of fossil monkeys in Europe. He was subsequently

engaged with Gaudry in paleontological investigations, and with Christy in exploring the caves of Périgord and publishing the results.

LA RUE, a co. in central Kentucky, watered by the Rolling Fork, an affluent of the Salt river, forming its northern boundary and emptying into the Ohio river; 240 sq.m.; pop. '80, 9,793—9,741 of American birth, and 1,047 colored. It is equally divided into forest and plain, the latter undulating, and possessing a soil of great fertility, producing oats, Indian corn, rye, and winter wheat, and is adapted to the raising of cattle, horses, sheep, and swine. Value of all live stock, $463,541. Value of home manufactures, $13,140. Number of manufacturing establishments in '80, 23, employing 72 men, with a capital of $61,900; annual product $97,238. It has four distilleries, and flour and saw mills. Seat of justice, Hodgensville.

LAR'VA, in natural history, is the denomination of animals which undergo transformation, in that state in which they first exist after issuing from the egg. Until recently, the larva state was known in insects only, and the term larva is still commonly used only with regard to them; but it has been discovered that many marine animals spend a considerable part of their existence in such a state, during which they are often extremely different from what they become after their next transformation; some of them, as the young of the cirrhopods, swimming about freely in the larva state, whilst they become firmly fixed to one spot when they have reached their perfect development, and—which seems still more remarkable—possessing eyes in the former state, and becoming destitute of them in the latter. The larva state of crabs exhibits a very singular form, long known as a distinct genus of crustaceans, under the name zoëa. The young of at least some entozoa pass through a larval state; those of the tape-worms were formerly regarded as creatures altogether distinct, and received the generic name *scolex*, which when now used is with regard to these animals equivalent to larva.—The larvæ of insects differ very much in the degree of their development, the differences being characteristic of different orders; some of them much resembling the perfect insect, except in the want of wings, and others being very unlike it. The larvæ of many insects, particularly those which are very unlike the perfect insect, as grubs (coleopterous larvæ), maggots (dipterous larvæ), and caterpillars (lepidopterous larvæ), accumulate fat in great quantity, which serves to sustain them during their *pupa* (q.v.) state, in which they take no food. The same accumulation of fat does not take place in larvæ more nearly similar to the perfect insect, as in neuropterous insects, the pupæ of which are active and voracious.

LARYNGI'TIS, or INFLAMMATION OF THE LARYNX, may be either an acute or a chronic affection. Acute laryngitis, in its more severe form, commences with a chill, which is followed by fever, with a full strong pulse, a hot skin, and a flushed face. There is also soreness of the throat, hoarseness of the voice, great difficulty in swallowing, and a feeling of extreme constriction of the larynx. There is a painful stridulous cough, but only a little mucus is ejected. Great difficulty of breathing soon comes on, the act of inspiration being prolonged, and wheezing, in consequence of the swollen membrane of the glottis impeding the entrance of air. On examining the fauces, the epiglottis (see LARYNX) is observed to be of a bright red color, erect, and so much swollen as not to be able to descend and close the glottis during deglutition. The patient exhibits symptoms of great anxiety and distress; his lips become blue, his face of a livid paleness, his pulse irregular and very feeble, and at length he sinks into a drowsy state, often preceded by delirium, and quickly followed by death. The disease is very rapid, ending, when fatal, in three or four days, and occasionally in less than one day.

The most frequent cause of laryngitis, whether mild or severe, is exposure to cold and wet, especially when in a state of perspiration. It frequently also arises from direct injury to the larynx, as from attempting to swallow boiling water or corrosive fluids, from inhaling irritating gases, etc.

In severe cases, the strongest antiphlogistic treatment must be at once adopted, as general bleeding, leeching, and either tartar emetic or calomel. If these fail, the only remedy upon which much reliance can be placed is tracheotomy. In chronic laryngitis, there is hoarseness, the voice is altered, and various morbid sensations are felt in the larynx, which excite cough. If the disease goes on to ulceration, phthisis or syphilis is probably its cause. The treatment of ulcerated larynx is noticed in LARYNX, DISEASES OF.

LARYNG'OSCOPE AND LARYNGOS'COPY. Although attempts had been previously made by Avery and Garcia to explore the recesses of the larynx by means of a reflecting mirror, it was not until two German physiologists, Drs. Turck and Czermak, took up the subject in 1857 and 1858, that the great importance of laryngoscopy was first generally recognized.

The laryngoscope is a small mirror placed on a stalk attached to its margin, at an angle of from 120° to 150°, the stalk being about 6 in. in length, and being composed of flexible metal, so that it can be bent at the will of the operator.

The mouthpiece of a large reflector, with a central opening through which the observer looks, is held between the molar teeth; or, which is better, the reflector may be attached to a speetacle frame by a stiffly working ball-and-socket joint. The rays of the sun or of a good lamp are concentrated by means of this reflector on the laryngeal

mirror, which is placed against the soft palate and uvula. The laryngeal mirror, introduced with the right hand, which rests by two fingers on the jaw, is maintained at such an inclination that it throws the light downwards, and illuminates the parts to be examined, while at the same time it reflects the images of these parts into the eye of the observer through the central opening of the reflector. By this means he can look through the larynx into the trachea or windpipe.

By means of this instrument we can see the actual position of small tumors, ulcers, etc., whose existence would otherwise have been at most only suspected; and the precision and accuracy of diagnosis to which we can thus attain, enable us to employ rational means of local treatment to an extent that was quite impossible before the introduction of laryngoscopy.

LAR'YNX, THE (Gr. *larynx*), is the organ of voice, and takes a part in the respiratory process, as all air passing either to or from the lungs must pass though it. It is a complex piece of mechanism, resembling a box composed of pieces of cartilage, which may be moved on each other, and inclosing the membranous bands (the *chordæ vocales*) by which the vocal vibrations are produced.

It is situated between the *trachea*, or windpipe, and the base of the tongue, at the upper and front part of the neck, where it forms a considerable projection (especially in men) in the mesial line; and it opens superiorly into the *pharynx*, or throat, and inferiorly into the windpipe.

The cartilages of which the skeleton of the larynx is composed are five in number—viz., the thyroid and the cricoid cartilages, the epiglottis, and the two arytenoid cartilages.

The *thyroid* (Gr. shield-like) cartilage consists of two square plates of cartilage united in front at an acute angle, which forms the projection which is commonly known as the *pomum Adami*, or Adam's apple. Each of these plates is prolonged at the upper and lower posterior corners. The thyroid cartilage forms almost the whole of the anterior and lateral walls of the larynx.

The *cricoid* (Gr. ring-like) cartilage is a ring whose lower margin is parallel to the first ring of the trachea, to which it is united by fibrous membrane. Its upper border is connected in front with the lower border of the thyroid cartilage by a thick yellow fibrous tissue. It presents two articular surfaces on either side, viz., a lower one, which articulates with the inferior cornua of the thyroid cartilage, and an upper one, which is oval in form, and supports an arytenoid cartilage. The *arytenoid* (Gr. ladle-like) cartilages are pyramidal bodies resting on the oval articular surfaces at the upper and posterior part of the cricoid cartilage. When *in situ*, they present a concave posterior surface. From their connection with the vocal cords, and from their great mobility as compared with the two larger cartilages, the arytenoids play a very important part in the mechanism of the larynx. The *epiglottis* is a very flexible cartilaginous valve, situated at the base of the tongue, and covering the opening of the larynx. Its direction is vertical, except during deglutition, when it becomes horizontal. It is attached inferiorly by a kind of pedicle to the angle of the thyroid cartilage. Upon removing the investing mucous membrane, the cartilage is found to be perforated by numerous foramina. Each perforation admits some fasciculi, of yellow, elastic, ligamentous tissue, which expands on its anterior aspect, and secures the return of the epiglottis to its vertical position, independently of any muscular action. Such is the skeleton of the larynx which hangs from the hyoid bone, with which it is connected by the thyro-hyoid ligament and certain muscles.

The various cartilages which have been described are connected to one another by ligaments, the chief of which are those known as the true and false vocal cords. In their quiescent state, the true vocal cords do not lie parallel to each other, but converge from behind forwards. The length of the vocal cords is greater in the adult male than in the adult female, in the ratio of three to two. In infancy, they are very short, and increase regularly from that period to the age of puberty. The mucous membrane of the larynx is part of the great respiratory tract (see MUCOUS MEMBRANE), and is remarkable for its great sensibility.

The length of the chink or aperture of the glottis, which is directed horizontally from before backwards, varies, like the vocal cords, until the period of puberty, when its length, in the male, undergoes a sudden devolopment, while in the female it remains stationary. In the adult male, it is about eleven lines in length.

The larynx is provided with two sets of muscles, viz., the *extrinsic*, by which the whole organ is elevated or depressed, and the *intrinsic*, which regulate the movements of the various segments of the organ in relation to one another. By the action of these latter muscles, aided, in some cases, by the extrinsic muscles, the tension of the vocal cords may be increased or diminished, and the size of the opening of the glottis regulated at will.

The nerves of the larynx are derived from the superior and inferior laryngeal branches of the pneumogastric or vagus nerve. The superior branch is for the most part sensory (being mainly distributed to the mucous membrane), while the inferior branch communicates motor-power to all the intrinsic muscles except the crico-thyroid.

In the preceding account of the cartilages, vocal cords, mucous membrane, muscles,

and nerves of the larynx, we have included only the most essential points. For details regarding the attachments of muscles, etc., the reader must consult any standard work on anatomy. That the larynx is the organ of voice, is proved by numerous facts, amongst which the following may be mentioned: "First, the least alteration in the condition of the mucous membrane covering the vocal cords is invariably accompanied by a change in the tone of the voice, e.g., hoarseness; secondly, ulcerative disease, eating through one or both of these vocal cords, destroys or greatly impairs the voice; thirdly, opening the trachea below the vocal cords, so as to divert the current of air in expiration from the larynx, will destroy the voice; fourthly, section of the inferior laryngeal nerves, by which the influence of the will is brought to bear on the muscles which regulate the tension of the vocal cords, destroys the voice; and lastly, by experiments on the dead larynx, sounds may be produced resembling those of the voice."—Todd and Bowman's *Physiological Anatomy*, vol. ii. p. 431.

Diseases of the Larynx.—Of these, the most serious is *acute inflammation* of the larynx, or laryngitis (q.v.).

Œdema, or *swelling of the glottis*, although of common occurrence in laryngitis, may be developed independently of inflammation, from obstruction of the veins leading from that part, or from other causes. The symptoms are those of acute inflammation, except that there is no fever or inflammation, and less difficulty of swallowing. Tracheotomy (the operation of making an opening into the windpipe, below the seat of the disease) affords the patient almost his only chance of life.

Chronic inflammation and *ulceration* of the larynx are very common in tubercular consumption and in secondary syphilis. In these cases, the laryngeal affection is merely a local manifestation of a general disease. The chronic hoarseness and cough are often remarkably relieved, in these cases, by swabbing the epiglottis and upper part of the air-passages with a strong solution of lunar caustic.

LA SALLE, a co. in n. Illinois, receives the Fox and Vermilion rivers, flowing into it from other counties, uniting with the head waters of the Illinois river within its borders: 1152 sq.m.; pop. '80, 70,403—52,569 of American birth. It has a surface of broad prairie land slightly undulating, generally well timbered, and possessing a soil of remarkable fertility, adapted to stock-raising and the raising of fruit and cereals. Large deposits of bituminous coal, sandstone, and limestone are found. Cash value of farms in 1870, $25,274,479. Total estimated value of all farm production, including additions to stock, $5,502,502. Value of all live stock in 1870, $3,906,367. Among its products in 1870 are 24,673 horses, 17,200 sheep, 273,374 bushels of wheat, 3,077,028 bushels of Indian corn, and 1,509,642 bushels of oats; other products are barley, buckwheat, tobacco, wool, potatoes, and 1,240,386 lbs. of butter, 52,416 lbs. of honey, also sorghum, flaxseed, and hops. Value of home manufactures $91,928. It had in 1870, 206 manufacturing establishments employing 1349 hands, with a capital of $1,691,030, annual product $2,690,152, engaged in the manufacture of flour, agricultural implements, saddlery and harness, carriages, dressed flax, window glass, machinery, and other industries. It has 5 coal-mines employing 379 hands, with a capital of $461,360, annual product $395,535. It is intersected in the s. by the Chicago and Paducah railroad where it crosses the w. division of the Chicago and Alton railroad, and by the Chicago, Pekin and Southwestern railroad; and in the n. by the Illinois Central, the Chicago, Burlington and Quincy, and the Chicago, Rock Island and Pacific. Seat of justice, Ottawa.

LA SALLE, a co. in s. Texas, with an uneven surface, very few trees, and a soil entirely uncultivated, but furnishing excellent ranges for cattle and sheep; 1400 sq.m.; pop. '80, 789—455 of American birth. Fort Ewell, an old trading post, is situated in the southern portion. The Rio Nueces in the s., and Rio Frio in the n.e., with their tributaries, irrigate their respective sections, but the greater portion is not well supplied with water. Value of farm products, 1880, $113,097. Product of wool in 1870, 26,000 lbs.

LA SALLE, a city of Illinois, United States of America, 110 m. n.n.e. of Springfield, is the terminus of the Illinois and Michigan canal, and junction of the Illinois Central and Chicago and Rock Island railways. La Salle has coal-mines near the city, zinc works, five churches, and two newspapers. The Illinois Central railroad here crosses the Illinois river on a bridge of twenty arches, 900 ft. in length. Pop. '70, 5,200.

LA SALLE (*ante*), a city in n. Illinois, at the head of navigation of the Illinois river, 99 m. w.s.w. of Chicago, 60 m. n. of Bloomington, 15 m. w. of Ottawa, and 1 m. e. of Peru on the same side of the river; pop. '80, 7,871. It is well built on a bluff overlooking a large extent of fertile country, and, with the suburban city of Peru, is made by its railroad connection, and the business brought to it by the canal, the center of a large and constantly increasing trade. It contains a national bank, good public schools, and 2 Roman Catholic academies. It has several foundries, machine shops, manufactories of hydraulic cement, and breweries. It furnishes large quantities of ice for the southern market.

LA SALLE, JEAN BAPTISTE DE, D.D., 1651–1719; a benevolent priest, founder of the *Ordre de la doctrine Crétienne*, author of a valuable school-book entitled *Civilité Crétienne*, and made abbe and saint by pope Gregory XVI.

LA SALLE, Renè Robert Cavelier, Sieur de, 1643–87; b. in Rouen, France, of a wealthy merchant family; discoverer of the Ohio and the main part of the Mississippi river. Studious and grave in youth, he entered a school of the Roman church and became a Jesuit priest. About his twenty-third year he withdrew from this service with the good-will of his superiors, and sailed for Canada, where an older brother was priest at Montreal in the seminary of St. Sulpice. This seminary was a religious corporation to which had been given a sort of feudal proprietorship of Montreal and its vicinage. The superior, seeing in La Salle a youth of high character, granted him a tract of land with seignorial rights, where the village of La Chine now stands, near the rapids of the St. Lawrence. The youthful lord built a fort, laid out a village, subdivided and leased lands in the seignorial form of that day, set apart a park or common, and in his own personal reservation cleared the land and erected buildings. He studied the Indian languages, and in a few years was master of seven or eight dialects. Trade with the Indians in furs, explorations into the surrounding country to extend this trade, and easy communication by the upper St. Lawrence with the tribes on its borders, gave La Salle the means to make improvements at La Chine, and enabled him to obtain that vague knowledge of the great interior which fired his ambition to learn more. Even down to that time men believed in a navigable passage to the South sea, to China and Japan, through this continent. The vast extent of the lakes, then dimly known through information gleaned from savages, seemed a probable connecting route to the Pacific. A band of the Senecas spent the winter at La Salle's fort and told him of the great Ohio rising in their country and flowing to the sea, but so long that eight or nine months were required to paddle to its mouth. La Salle believed that this stream must empty into the gulf of California on the Pacific. He quietly formed his plans to be its Columbus, obtained the governor's consent, and letters patent authorizing the exploration, *but at his own expense.* He sold his seignory and all improvements to get the means. July 6, 1669, with 14 men and four canoes the expedition started up the St. Lawrence. It took them 30 days to pass the rapids, the Thousand islands, and to reach lake Ontario. Thence they skirted the s. shore to the mouth of the Genesee, where they remained a month, seeking information and friendship among the Indians. Then coasting westward they passed the mouth of the Niagara, heard the far roar of the cataract, and reached the w. end of lake Ontario. There he found a Shawnee prisoner who promised to conduct him to the Ohio river in six weeks. Here he met Joliet, afterwards with Marquette discoverer of the upper Mississippi, returning from a futile search for copper mines on lake Superior. From him he procured a map of the lake country which he had visited. From this point the records of La Salle's movements are not full. It is known, however, that he went southward and embarked on the head stream of the Alleghany river e. of lake Erie and followed it down to the Ohio, which he explored to the rapids at Louisville. There he learned from the natives that, far beyond, this stream joined the bed of that great river which lost itself in the vast lowlands of the south. Here his men deserted in a body. La Salle returned "400 lieues" to Canada alone, living upon the chase, herbs, and the hospitality of the natives. Nicholas Perrot, a famous early *voyageur,* states that he met La Salle in the summer of 1670 hunting on the Ottawa with a party of Iroquois. This gives the required time for his return, and indicates both his reduced circumstances and that he was energetically at work to get the means for another expedition. The season of 1671 finds him embarked on lake Erie, which he skirted in canoes to the mouth of the Detroit river; thence through lake Huron to Mackinac and lake Michigan. Beyond Green bay he explored the western shore of the lake, not known to have been visited before by white men, and made the portage to the Illinois river either where Chicago now stands, or by the way of the St. Joseph and the Kankakee on the s.e. shore of the lake. He followed down the Illinois to, or nearly to, the Mississippi, and made a map of its course and tributary streams. This map indicates that he made the Chicago portage, though his subsequent explorations via the St. Joseph and Kankakee portage indicate that he did not so early learn of the Chicago trail to the Illinois. He returned to Montreal and reported his discoveries. In 1672–73 he seems to have been busy in the fur trade. The latter year he laid before the governor, Count Frontenac, the project for the exploration of the Mississippi. The governor could promise no money, but the project had collateral mercantile advantages in which he might participate with La Salle, so that he gave the sanction of his authority to the enterprise. Ostensibly, the project was to build forts westward of Canada to hold the country for Louis XIV., and to prevent the rich trade in furs from being diverted to the Dutch and English at Albany and New York. In effect it would give him a base of operations for the great discovery to which his imagination and energy impelled him. The forts were to be made centers for the fur trade beyond the competition of Montreal. The project met with strong opposition from the traders of Montreal and from the directors of the Jesuits, but Frontenac's imperious will had its way. By official strategy he managed to have a fort built for La Salle at a point designated by him near where Kingston, Canada, now stands, and invited the Iroquois to a grand council there. La Salle's scheme embraced forts at Niagara and on the upper lakes.

In Nov., 1674, Frontenac sent him to France favorably commended to the king. He was received with honor at the court. In consideration of his services as an explorer he was made an untitled noble, governor of the new fort Frontenac, and given a valu-

able seignorial grant around it. The season of 1675 finds La Salle back at fort Frontenac and in a position of great power, where his trading plans could hardly fail to realize great profits and ample facilities for his explorations. Wealthy relations at Rouen, now very proud of him, furnished him with ample means to make the improvements and maintain the garrison required by the terms of his grant; which he fulfilled.

About this time a bitter feeling between La Salle and the Jesuits threatened to endanger the success of his enterprises. Evidently a man of settled religious belief in the Catholic faith, he was at the same time advanced in his views of what tends to a people's development, and of the controlling power of commerce. He saw little advantage to France or the Indians in missions merely to induce an outward worship of the cross by the savages. The Jesuits could retain their control over the Indians only by excluding traders from among them. They were therefore enemies of any trading around their distant missions which they could not control for the support of their order. The profits derived from the fur trade under their direction at the missions was an important part of their revenue. Thus a monopoly of trade as well as of religion grew up in their hands, and divided Canada into two parties. The imperious and clear-headed Frontenac and La Salle, with the power of the temporal government, and one branch of the church, were on one side, and the solid Jesuit power was on the other. With the latter were numerous traders who thrived by their favor at the missions. La Salle was considered the head of the former party, and no means were spared to break his influence and injure his good name. The Jesuits procured an order from the supreme council prohibiting traders from going into the country of the Indians to trade, thus giving their missions the monopoly. La Salle circumvented this by inducing a large settlement of Iroquois around his fort, who could range the country for him as hunters and trappers without being considered traders. Besides a new fort and barracks, he built a flouring mill, a bakery, and groups of houses for French settlers. His fort was surrounded by Indian villages. Absolute lord of the colony, he seemed to lay the foundation of his own fortune by multiplying the means and incentives to industry for others.

Early in 1678 he again visited France to secure confirmation and extension of the privileges of discovery before granted. Colbert, the prime minister of Louis XIV., authorized him to build forts in any region which he might discover, and to hold them on the same terms before obtained in the grant of fort Frontenac; authorized a monopoly of trade in buffalo skins, before hardly thought of; but forbade trade with Indians who brought furs to Montreal. In July, 1678, he set sail for Canada, amply supplied by the wealth of his relatives, and the favor of the government. In Nov. the several parts of the expedition assembled at fort Frontenac. Father Hennepin had a commission under him. On Nov. 8, 1678, disregarding the lateness of the season, he embarked to begin the great journey to the sea. Winter frowned upon the lake, but in eight days the vessel anchored in Toronto bay. On Dec. 5 they crossed to the mouth of the Niagara, and commenced a palisade fort. The vessel was wrecked soon after, and the stores saved from her were carried up the cliffs of Niagara, and thence by sledge to the shore of lake Erie. There, at the mouth of Cayuga creek, they laid the keel of the first vessel built above the falls—the *Griffin*, a bark of 45 tons. A hard winter, scant supply of provisions, the loss of the vessel and stores in lake Ontario, hostile Indians all around them, made the settlement a dreary one. La Salle made his way back to fort Frontenac, 250 m., on foot, through the snows of tangled forests, with two men, a dog and sledge. On his arrival he found his property seized by creditors. He sacrificed it and adhered to the enterprise; returned with equipment for the *Griffin*, which was completed in the spring and summer of 1679. On Aug. 7, La Salle and 34 *voyageurs* embarked. A favoring breeze carried them to the mouth of the Detroit in four days. Nearly wrecked by a storm on lake Huron, they reached Mackinac and anchored behind the point St. Ignace, where the Jesuits had a settlement already strong in numbers and trade. In Sept. the voyage was continued to Green bay. Here he found his advance party had collected a quantity of rich furs. He at once loaded them on the *Griffin* and sent them back to his creditors, but the vessel was never again heard from. La Salle now continued his voyage in canoes along the western shore of lake Michigan. Storms kept them company. Through weeks of constant danger in the surf that lashed the coast, they reached the bay of Milwaukee. South of that, fairer weather, game, and fruit welcomed them; and reaching the mouth of the St. Joseph river he erected fort Miamis. Dec. 3, 1679, with a party of 32 men and 8 canoes they ascended the St. Joseph to where South Bend now is, were shown trails leading to the Kankakee, and carrying their canoes over the portage, launched them in a stream little more than their own width, but growing hourly in volume as they floated down. Near the present village of Utica they found an Indian town of 460 lodges. Here, on New Year's day, 1680, they landed and said mass. A few days later they were at the present site of the city of Peoria, below which they came upon an Indian town occupying both banks of the river. La Salle succeeded in making peace with the natives, though even in that far interior prairie the dark hand of the Jesuit power had found means to stir the Indians to enmity against him. Attempts had previously been made to poison him. It seemed as though every obstruction that Nature and human malignity could join was henceforward to lie in his path. The ice had closed the river. Surrounded by Indians, deserted by six of

his men, undermined by the secret influence of his enemies among the Indians, apprised of the loss of the *Griffin* which he had relied on to bring back the means to build a boat on the Illinois in which to sail down the Mississippi to the gulf and thence to the West Indies, this lion heart still kept faith with his great aim. He built a fort near the Indian town called *Crèvecœur*. That done, he began a vessel of 40 tons on the bank of the Illinois; and then, with four Frenchmen, a Mohican guide, and a canoe, started back to Montreal via his fort at the mouth of the St. Joseph, where they arrived Mar. 24; thence e. on foot to the Detroit river, which they crossed by raft, and on to the fort of the Niagara river. There he learned that a vessel from France, with cargo consigned to him, had been wrecked in the gulf of St. Lawrence. At the fort he took three fresh men, and pushing through the woods of the northern shore of lake Ontario, on May 6 he sighted the walls of fort Frontenac. Here he found that some of his agents had robbed him; his creditors had crippled those who were faithful, and his *voyageurs'* canoes, richly laden with furs, had been wrecked in the rapids of the St. Lawrence. But with a proud front he shamed his enemies by his advent when they hoped to hear of his death. In a short time he secured another outfit, and was on the point of returning to the Illinois when he learned that his fort Crèvecœur had been deserted and plundered by his men, who, organized as banditti of the woods and lakes, had also visited and destroyed the fort on the St. Joseph, plundered Michilimackinac of his furs, came on to fort Niagara, and plundered that, and there divided, one part going to Albany and the other being then on their way to fort Frontenac to surprise and kill La Salle. Warned at the critical moment, with a small party he surprised them in detail as they came in canoes, and captured or killed nearly the whole party. Having lodged these men in prison, on Aug. 10 La Salle, at the head of 25 men for the Illinois, prepared to finish his vessel for the descent of the Mississippi. He traveled by the eastern shore of Georgia bay to Mackinac. It was Nov. 4 when he reached the ruined fort at the mouth of the St. Joseph. Leaving his stores there, he went on to fort Crèvecœur. There not only was the fort destroyed. but where he had left a populous Indian village the blackened remains of lodges and human bodies half-burned told of the bloody visit of the Iroquois. He followed the river to the Mississippi, seeing along that whole valley the horrible evidences of the retreat of the whole tribe of the Illinois under the murderous attacks of their powerful enemy. Leaving a mark on the shore of the Mississippi to show that he had been there, his party returned to the mouth to recommence preparations for the great voyage. It was Jan. 6, 1681, when he reached the Kankakee, and soon after the St. Joseph. The horrors of the Iroquois invasion of the Illinois country had made a great impression upon him. He conceived the idea, and at once put it in execution, to unite the western tribes in self-defense by rallying them around the French flag at his forts. His tact, noble presence, and oratory had always given him a wonderful influence among the Indians, swaying them to his will. Soon the discords of warring tribes were made to yield to his plan. Late in May he went to Michilimackinac; thence 1000 m. by canoes to fort Frontenac. This time the great governor had kept La Salle's enemies at bay. Before winter he was again at the head of a strong party pushing in canoes all around the lakes to the St. Joseph, where he arrived early in December.

On Dec. 21, 1681, the party of 54 men in all crossed the lake in canoes to the mouth of the Chicago to find that portage to the Illinois. The streams were frozen. The canoes were put on sledges and dragged over prairie and woodlands of the river margin till they came to open water below lake Peoria. Thence they floated down the Illinois, and on Feb. 6, 1682, emerged on the Mississippi. Floating ice delayed them, but a week later, safely on its rapid current, they were borne toward the gulf. On the 24th they encamped near the third Chickasaw Bluffs, where they built fort Prudhomme. Then in the realms of spring they floated down the tortuous river, finding not only more genial skies but a kindlier and more intelligent race of Indians. La Salle, as usual, won their good-will and planted monuments in their villages to claim the new dominions for the king of France. On Mar. 31 they were at the mouth of the Red river; on April 6, at the divergence of the three mouths of the Mississippi; and April 9, 1682, he erected at the mouth of the river a monument and a cross bearing the arms of France, upon which, with all the ceremonies that could add to the impressiveness of the event, La Salle proclaimed the river and all the lands drained by it to be by right of discovery the dominions of Louis XIV., king of France.

In Sept. of that year the indefatigable explorer was back at Michilimackinac, then at the St. Joseph, and before winter set in was building a fort for the protection of the Illinois at Starved Rock, a natural castle rock that rises abruptly from the Illinois river not far from Peoria. The following year 20,000 Indians are said to have settled near it for protection. In the spring of 1683 it seemed that La Salle had conquered success. He had discovered the valley of the Mississippi. It is true De Soto had crossed it nearly a hundred years before near its mouth, and Joliet and Marquette had explored it at the north, but to La Salle belongs the glory of tracing the great river for the first time from source to sea, and determining the connection between the two discoveries. But his troubles thickened with his success. Frontenac, his determined and powerful friend, was no longer governor of Canada. An enemy was in his place, La Barre, who not only set the king against La Salle but authorized the Indians to consider him and his property

as legitimate spoil, seized his forts, and ordered him to Quebec. The king wrote this curious letter to La Barre: "I am convinced, like you, that the discovery of the Sieur de la Salle is very useless, and that such enterprises ought to be prevented in future, as they tend only to debauch the inhabitants by the hope of gain, and to diminish the revenue from beaver skins"! La Salle went back to Quebec, where it does not appear that the governor dared proceed further against him. He sailed for France to see the king—less king than he. At the luxurious court of Louis XIV. this intrepid traveler on lonely coasts and northern snows, this denizen of savage huts, fresh from beds on the frozen ground of Michigan and in the malarious delta of Louisiana, had no difficulty in making powerful friends. Count Frontenac was one. The government reversed its policy, ordered the restoration of all his forts and privileges, and ordered four vessels and money to be placed at his disposal to make the voyage direct from France to the mouth of the Mississippi. The fleet, which sailed July 24, 1684, unluckily was placed under the command of one Beaujeu, a man filled with villainous pride of rank and envy of other authority. La Salle had supreme command of the expedition, but this captain, as the naval officer of the fleet, lost no opportunity to thwart and balk his plans. The voyage was a series of misfortunes from this cause, and when at last in the gulf of Mexico the mouths of the Mississippi were passed unobserved, and La Salle searched vainly for them along the reefs and sandbars of the Texas coast, anchoring at last in Matagorda bay in the belief that there was the western mouth of the Mississippi known as bayou La Fourche, Beaujeu sailed back with all but one of the fleet, leaving the colony to its fate. On Feb. 16, 1685, the ship laden with stores for the colony foundered on the reefs at the entrance to the bay. "A lonely sea," says Parkman, "a wild and desolate shore, a weary waste of marsh and prairie; a rude redoubt of driftwood and the fragments of a wreck, a few tents and a few wooden houses; bales, boxes, casks, spars, dismounted cannon, Indian canoes, groups of dejected men and desponding home-sick women—this was the forlorn reality to which the air-blown fabric of an audacious enterprise had sunk. . . . The tall form and fixed, calm features of La Salle" were all that remained to stamp with dignity this essay to found an empire for France in the valley of the Mississippi. From this time forth successive misfortunes made La Salle's life but as a dirge anticipating death. He established his colony on the river Lavaca, and found by exploration of Matagorda bay that the great river at its e. end is not a part of the Mississippi, but the Colorado of Texas. Summer and autumn passed in herculean labors without results except a fort and houses for those whom death had not kindly taken. He had resolved to traverse the continent to Canada on foot and again discover the Mississippi on his way, and get succor for his colony from Canada. On Nov. 1, 1685, he parted from the colony at the head of a party to search for the fatal river. At the end of Mar., 1686, with half the party lost or dead, he returned baffled. In the entanglements of strange rivers and swamps, among Indians from whom he could learn little and who had to be placated as he went, the months passed fruitlessly. Fever seized him on his return, from which unhappily he recovered. Again he set out to make the overland journey to Canada. Again in the cane-brakes of Louisiana he was forced to return with the loss of eight men. Now out of 200 who had landed on that desolate shore but 45 remained. After a sickness without sign of despair, having made every provision possible for the safety of the colony, on Jan. 7, 1687, this hero of misfortune again led a little forlorn hope to reach Canada. But desperate men in his little party organized a mutiny, murdered three of their companions while sleeping, and shot La Salle from an ambuscade as he went to face them down.

Thus ended a life under 44 years in length, which had covered half a continent with its explorations, with a record not surpassed in all history for indomitable will and great achievements. Yet ever as he reached out for their fruits he grasped but the ashes of his hopes. Noble in aims, in character, in person, he was only too much elevated in natural capacity above those around him, too haughty and imperious, to attract the kindly good-will of average men; and his misfortunes were jointly the result of these qualities and of the network of warring interests with which the Jesuits of his time constantly beset his path. Sparks's *Life of La Salle* and Parkman's *History of the Discovery of the Great West* give vivid details of his life.

LAS AN'IMAS, a co. in s.e. Colorado, has for its southern boundary New Mexico and the Indian territory, and the state line of Kansas on the east. The Sangre de Christo range of the Rocky mountains rises in the extreme west, and the surface is broken by low hills and by the Mesa de Mayo, the table-lands, in the south; about 7,000 sq.m.; pop. '80, 8,904—8,363 of American birth. It is intersected by the Denver and Rio Grande railroad, running from Pueblo southward to Fort Garland in the mountains. It is drained by the Cimarron river, rising in the Raton mountains in the extreme s.e., its banks having no timber; the Las Animas or Purgatory, rising near Purgatory peak of the Rocky mountains, having deposits of coal; and the Apishapa, rising near the Spanish peaks in the n.w.; and by other affluents of the Arkansas river. In the eastern portion are good tillable lands. In '70 it had 80 farms, 1 over 50 and under 100 acres. The leading products are corn, wool, wheat, and oats; of minerals, lignite, coal, marble, and iron ore are found. The land slopes eastward from the Rocky mountains and furnishes fine pasturage on the elevated portion. Fisher's peak of the Raton mountains rises

9,460 ft., in the w. Trinchera peak in altitude 13,546 ft., and Culebra peak 14,079 ft. above the level of the sea. Seat of justice, Trinidad.

LAS'CAR, in the East Indies, signifies properly a camp-follower, but is generally applied to native sailors on board of British ships. The Lascars make good seamen, but being of an excessively irritable and revengeful nature are generally kept in the minority in a ship's crew.

LASCARIS, CONSTANTINE, a celebrated Greek refugee, after the capture of Constantinople by the Turks, and one of the first founders of Greek studies in the west. He was received with distinction by Francesco Sforza, duke of Milan, in 1454, who intrusted to him the education of his daughter Hippolyta; but a more important scene of his labors was Rome, where he settled in the train of the learned Greek cardinal, Bessarion, and, finally, Naples and Messina, where he taught rhetoric and Greek letters until his death in 1493. His Greek grammar, entitled *Erotemata*, and dated 1476, is the earliest printed Greek book. To him his contemporaries were also indebted for several other elementary Greek books of less note. His grammar is known chiefly through a Latin translation printed at the Aldine press, and frequently reprinted. His library, which is very valuable, is now in the Escurial.—JOHN JANUS LASCARIS, a member of the same family, surnamed RHYNDACENUS, has also acquired a place in the history of the revival of letters. He was one of those whom Lorenzo de' Medici employed in the collection of ancient, and especially Greek classical authors, of whom Lascaris brought home a valuable collection from Mt. Athos. On the death of Lorenzo, Lascaris went to Paris, where he taught Greek under Charles VIII. and Louis XII.; but he eventually settled in Rome, where he was appointed by Leo X. to the superintendence of the Greek press which that pontiff established. Lascaris edited several of the *editiones principes* at the Roman press. He was employed as ambassador at the court of Francis I., and afterwards at Venice, and died in Rome, at a very great age, in 1535. See Villemain's *Lascaris, ou les Grecs du* 15me *Siècle* (Paris, 1825).

LAS CASAS, BARTOLOMÉ DE, Bishop of Chiapa, in Mexico, surnamed the *Apostle of the Indians*, a celebrated evangelist and philanthropist, was of French descent, and was b. in Seville in 1474. He studied at Salamanca. In 1502 he accompanied Don Nicolas Ovando, who was sent out as governor, to St. Domingo. Eight years after his arrival there, he was ordained to the priesthood, and was subsequently appointed to a charge in Cuba. Here he began to signalize himself by his exertions in favor of the oppressed Indians. To oppose the law which divided them amongst the conquerors, he went to Spain, where he prevailed on Cardinal Ximenes to send a commission of inquiry to the West Indies; but the proceedings of the commission by no means satisfying his zeal, he revisited Spain, to procure the adoption of stronger measures for the protection of the natives. Finally, to prevent the entire extirpation of the native race by the toils to which they were subjected, he proposed that the colonists should be compelled to employ negro slaves in the more severe labors of the mines and sugar plantations; and the proposal was adopted. Las Casas has, on this account, been represented as the author of the slave-trade, although it has been proved to have existed long before this proposal was made. Las Casas afterwards attempted to carry out Castilian peasants as colonists to the West Indies, with the view of giving more complete effect to his schemes on behalf of the Indians; but failing in this, he retired to a Dominican convent in Hispaniola. He again visited Spain in 1539 out of benevolent regard to the native inhabitants of the West Indies, and published his *Brevissima Relacion de la Destruccion de las Indias*, which was soon translated into the other languages of Europe. The rich bishopric of Cuzco was offered to him, but he preferred the poor one of Chiapa, in a wild and almost unexplored region. The colonists received him with no friendly feelings, and as he went the length of refusing the sacraments to those who disregarded the new laws in favor of the Indians, he drew upon himself not only the resentment of the planters, but the disapprobation of the church, so that he was compelled to return to Spain, where he ended his life in a convent in Madrid, July, 1566, at the age of 92. In the course of his ardent career, he crossed the Atlantic sixteen times. A collection of his works appeared in his lifetime (Seville, 1552), but his most important work was published after his death, the *Historia General de las Indias.*

LAS CASES, EMMANUEL AUGUSTE DIEUDONNÉ, Count, the companion and historiographer of Napoleon in St. Helena, said to be of the same family as the preceding, was b. in 1766, in the château of Las Cases, near Revel, was a lieut. in the navy before the revolution, and then fled from France, served in the prince of Condé's army, spent some time in England, where he supported himself by private teaching, and took part in the expedition to Quiberon. After Napoleon's accession, he returned to France, and labored in the preparation of his admirable *Atlas Historique*, which was published under the name of Le Sage (Par. 1803–4; last ed. Par. 1824–28). This work attracted the attention of Napoleon, who made him a baron, and employed him in offices connected with the home administration. After the battle of Waterloo, he offered to share the exile of Napoleon; and in St. Helena, the ex-emperor dictated to him a part of his memoirs. A letter which Las Cases contrived to send to Lucien Bonaparte, led to his separation from Napoleon; and after eight months' confinement at the cape of Good Hope, he was brought to Europe, and resided mostly in Belgium till Napoleon died, when he returned

to France, and published the *Mémorial de Ste. Hélène* (8 vols. Par. 1823; amended edition, 1824, often reprinted), a work which must be always a chief source of information respecting Napoleon, but in which the author has taken too much liberty with his materials. After the revolution of 1830, he was for some time a member of the chamber of deputies, where his place was on the extreme left. He died May 15, 1842.

*LASKER, EDUARD, b. 1829, in the province of Posen in Prussia; student of jurisprudence in Prussia and England, and a lawyer in Berlin. In 1865 he became a member of the German house of deputies from Berlin, and afterwards from Magdeburg and Saxe-Meiningen. Allied by conviction with the liberal party, he still became, by his desire to promote the unity of Germany, the support of the imperial policy of Bismarck to that end. He has been one of the leaders of the national liberal party in the German parliament, where his treatment of economic questions has marked him as one of the most courageous, able, and independent of German statesmen. See *Supp.*, page 895.

LASKI, JAN, or JOHN A'LASCO. See ALASCO, JOHN.

LAS PAL'MAS, chief t. of the Canary islands (q.v.), is situated on the east coast of the island of Gran Canaria. It is a large, well-built town, is the seat of a bishop and of the supreme court for all the islands. Pop. 17,382.

LAS PILAS, one of a chain of volcanic mountains, is situated on the w. coast of Nicaragua bordering on the Pacific ocean; n.w. of Leon lake and on the plain of Leon. It belongs to the Marrabios chain. It rises to a height of 3,985 feet. In 1850, by an eruption of subterranean fires, a gradual accumulation of lava was begun that in a few weeks increased to a height of hundreds of feet; but the volcanic action suddenly ceased and appears to be extinct. It stands at the base of the larger volcano, making one of a number of smaller surrounding craters.

LASSA, the capital of Thibet, situated on the Dzangtsu, in lat. 30° 45′ n., and long. 91° 27′ e.; the largest town in Central Asia, about 9,500 ft. above the level of the sea. It is famous for the convents in and near it, composing the ecclesiastical establishments of the dalai-lama, whose personal residence is in a convent on the adjacent mount. Lassa is to Buddhism what Rome is to Catholicism, it is the head-quarters of the hierarchy of lamas, who, by means of the dalai-lama, exercise priestly control over nearly all Mongolia, as well as Thibet. The city lies in a fertile plain, extending about 12 m. from n. to s., and about 125 m. in length. Mountains and hills encircle it. A Chinese garrison is quartered near the Mt. Botala, whose temples are resplendent with gold and precious stones. Since the expulsion of the Nepaulese in 1792, no foreigners are allowed entrance from the south. Pop. conjectured at 24,000.

LASSEN, a co. in n.e. California, has Nevada for its e. boundary, and on the s. and s.e. is bounded by a range of the Sierra Nevada mountains; 4,932 sq.m.; pop. '80, 3,340—2,969 of American birth, 382 colored. The Pitt river flows w. through the n.w. portion, emptying into the Sacramento in Shasta co., which forms its western border. The Susan river and Willow creek empty into Honey lake in the s.e., a considerable body of water, shallow, but with no known outlet, at an altitude of 4,200 ft. above the level of the sea. Eagle lake, lake Stanford in the central part, and Alkali lake in the n.e. receive the drainage of its mountainous region. The Black Butte in the s.w., the Walker range in the n., and the long chain of mountains in the s. are covered with forests of pine and fir. There is a large extent of meadow and tillable land in the lake valleys, changing on the plains into a clayey soil with a thick growth of sage-brush. In the river bottoms there is a preponderance of alkali. Its leading products are grain, wool, butter, cheese, and hay. Cattle, sheep, and swine are raised; the uneven slopes of the mountains furnishing good grazing. Silver is found in the gulches. Seat of justice, Susanville.

LASSEN, CHRISTIAN, a most eminent orientalist, was b. on Oct. 22, 1800, at Bergen, in Norway; studied at Christiania, and afterwards (1822) at Heidelberg and Bonn, and assisted Schlegel in the publication of the *Râmâyana* and *Hitopadesa.* He also associated himself with Eugène Burnouf in the production of the *Essai sur le Pali* (Par. 1826). In 1830 he became extraordinary, and in 1840 ordinary, professor of ancient Indian languages and literature at Bonn. He edited many Sanskrit works, deeply investigated the relations of the oriental languages and antiquities, and published several very important works, the chief of which are *Die altpersischen Keilinschriften* (Bonn, 1836); *Vollstaendige Zusammenstellung aller bis* 1845 *bekannt gemachten altpers. Keilinschr. mit Erklärung,* embodying Westergaard's investigations (Bonn, 1845); *Beiträge zur Geschichte der griech. und indo-scythischen Könige in Bactrien, Kabul und Indien* (Bonn, 1838); *Institutiones Linguæ Pracriticæ* (Bonn, 1837); *Gitagovinda Yayadevæ* (Bonn, 1837); *Anthologia Sanscritica* (Bonn, 1838); *Indische Alterthumskunde,* a critical history of Indian civilization (Bonn, 1847–61; new ed., 1861–74), etc. He has contributed much to our knowledge of the cuneiform inscriptions, and of the ancient and modern Iranic dialects, on which and kindred subjects numerous articles from his pen are to be found in the *Zeitschrift für die Kunde des Morgenlandes,* Ersch and Gruber's *Encyclopædia,* etc. Lassen died at Bonn, May 6, 1876.

LASSEN'S PEAK, a spur of the Sierra Nevada mountains, rising 10,577 ft. above the evel of the sea, where three counties of California—Shasta, Tehama, and Plumas—meet.

It is an extinct volcano, and its soil consists partly of lava essentially composed of feldspar. Its top is covered with snow; pine and fir trees grow to a mammoth size on the slopes beneath, and groves of nut pine, oak, and manzanita flourish on the foot-hills, It is one of the highest peaks of the Sierra Nevada range.

LAS'SO, a long stout cord or thong of skin, with a leaden ball at each end, employed by the South Americans in capturing wild horses, oxen, etc. It is thrown in such a manner, that when it strikes the neck or leg of the animal to be captured, the impetus of the ball causes the cord to coil round the limb. The hunter's horse is furnished with a saddle having a high pommel, so that the hunter may coil his end of the lasso round it, or even fix it, if he chooses, though this latter practice often leads to dangerous consequences. The lasso was frequently used against European soldiers during the contest of the South American republics for independence; and, though with very little success, by the barbarians in the Russian army against the French sentinels during the Crimean war. Similar in its name and application is another implement consisting of a stout thong of hide with a slip-noose, used in many countries, but chiefly among the South American and Mexican hunters. It requires much greater address to use it successfully. In Mexico the lasso is called a *lariat.*

L'ASSOMPTION, a co. in w. Quebec, Canada, n. of the island of Montreal, and bounded on the s. and s.e. by the St. Lawrence river. The eastern portion is formed into a little peninsula by the L'Assomption river, which flows through it to the St. Lawrence; 248 sq.m.; pop. '81, 15,282—14,862 of French descent. Directly s. of it the Jesus and Prairie rivers, branches of the Ottawa, encircling the Isle of Jesus, meet the St. Lawrence at the mouth of the L'Assomption river. The surface is mountainous, and is drained by the Mascouche and Achigan rivers. The leading industry is the procuring of timber, supplied from extensive forests of white and red pine; other kinds of timber are black walnut, maple, cherry, and basswood. The winters begin on the last of November and last till the end of March, and the atmosphere is clear and bracing. It has some trade in grain and potash, and the water-power is utilized by flour, grist, carding, and saw mills, Seat of justice, L'Assomption.

LA'STAGE, in maritime language, denotes the ballast or lading of a vessel.

LASTEYRIE, Ferdinand Charles, Comte de, b. in Paris, 1810; a graduate of the school of mines; aid-de-camp to Lafayette in the revolution of 1830; member of the chamber of deputies 1842–47, where he ranged with the constitutionalists. After the revolution which substituted Louis Philippe and a liberal constitution for the Bourbon régime he was elected member of the constituent assembly from Paris, and acted with the moderate republicans. He joined with members who protested against the *coup-d'état* of Louis Napoleon in 1851, and retired to private life. He is author of numerous works on subjects of art and archæology, and a valued contributor to the Paris *Siècle.*

LAST HEIR, in Scotch law, means the sovereign, who takes the property of persons deceased who leave no legal heir. See Intestacy.

LASTRA A SIGNA, a t. in the province of Florence, Italy, on the left bank of the Arno, 8 m. s.w. of the city of Florence; pop. 10,276. Under the Florentine republic it was a fortified place.

LAST TESTAMENT, or Will, is the last instrument in point of date, and it revokes prior wills so far as inconsistent. See Will.

LA'SUS, or Lassus, about 510 B.C.; b. at Hermione in Argolis; a Greek dithyrambic poet, reputed to have counted Pindar among his pupils. He lived in Athens in the reign of Hipparchus, and that of Darius, satrap of Persia. Only one of his poems is said to be extant, in Bergk's Greek lyric poets.

LATAKI'A (Turkish, *Ladakiyeh;* anc. *Laodicea*), a seaport of Syria, in the pashalic of Tripoli, and situated 75 m. n. of the town of that name, and 60 m. s.w. of Antioch, is surrounded by plantations of myrtle, pomegranate, mulberry, and olive trees. It consists of the decaying upper town and the lower town, which are separated by magnificent gardens. On the hills in the vicinity, a mild and finely-flavored tobacco is grown, and is extensively exported. Pop. from 7,000 to 10,000. Latakia occupies the site of the ancient *Laodicea ad Mare,* which was founded by Seleucus Nicator, and named after his mother, and which formed the port of Antioch. The ruins of the aqueduct built here by Herod the great are still extant.

LATANE, James Allen, D.D. See page 895.

LATEEN'-SAIL, a large triangular sail, common in the Mediterranean. The upper edge is fastened to the lateen-yard, a spar of considerable length, which is held at about an angle of 45° with the deck, by means of a mast crossing it at a third or a fourth of the way up.

LATENT FAULT. In the contract of sale, it is a rule that the buyer takes the risk of all latent faults or defects in the thing sold which were unknown to the seller at the time of the sale, all that the seller answers for being, that the thing is, so far as he knows, what it appears to be. This, which was the English rule, was extended to Scotland by the statute 19 and 20 Vict. c. 60, s. 5.

LATENT HEAT. See Heat.

LA'TERAN, CHURCH OF ST. JOHN, the first in dignity of the Roman churches, and styled in Roman usage "the mother and head of all the churches of the city and the world," is so called from its occupying the site of the splendid palace of Plantius Lateranus, which, having been escheated (66 A.D.), in consequence of Lateranus being implicated in the conspiracy of the Pisos, became imperial property, and was assigned for Christian uses by the emperor Constantine. It was originally dedicated to the Savior; but Lucius II., who rebuilt it in the middle of the 12th c., dedicated it to St. John the Baptist. The solemn entrance of the pope into office is inaugurated by his taking possession of this church; and over its portico is the balcony from which the pope, while still sovereign of Rome, was used, on certain festivals, to bless the entire world. The original church is said to have been the Basilica which was presented to Sylvester by Constantine, but it has been several times rebuilt, its final completion dating from the pontificate of Clement XII. It has been the scene of five councils, regarded as ecumenical by the Roman church. See COUNCIL. The Lateran palace was the habitual residence of the popes until after the return from Avignon, when they removed to the Vatican. It was afterwards occupied by officials of the chapter, and is now under the control of the Italian government. The late pope, Pius IX., had converted a portion of it into a museum of Christian archæology. In the piazza of St. John Lateran stands the celebrated relic called the "scala santa," or "holy staircase," which is reputed to be the stairs of Pilate's house at Jerusalem, made holy by the feet of our Lord as he passed to judgment.

LATERAN COUNCILS, the general name given to numerous councils held in the Lateran church at Rome, among the more important of which may be mentioned: I. That of 649 A.D., consisting of over 100 bishops of Italy, Sicily, Sardinia, and Africa, was called by Martin I. to consider the doctrine of the Monothelites. Five sessions were held, the writings of the leading advocates of the theory were examined and condemned, and the judgment of the council, expressed in 20 canons, anathematized all who did not confess that in the one person of the Lord Jesus there are two wills and two methods of working. II. Councils held in 1105, 1112, 1116, and 1123, with reference to the contests between the pope and the emperor concerning the right of investing bishops. The last of these, containing 300 bishops and 600 abbots, all belonging to the Latin church, and presided over by the pope, Calixtus II., adopted the principles of the concordat passed at the imperial diet the preceding year. This declares that "the emperor surrenders to God, Peter and Paul, and to the Catholic church all right of investiture by king and staff. He grants that elections and ordinations shall take place freely in accordance with ecclesiastical laws. The pope agrees that the election of German prelates shall take place in the presence of the emperor, provided it is without violence or simony. In case any election is disputed, the emperor shall render assistanee to the legal party, with the advice of the archbishop and bishops. The person elected is invested with the imperial fief by the royal scepter pledged for the execution of everything required by law. Whoever is consecrated shall also receive in like manner his investiture from other parts of the empire within six months." By this arrangement the pope, apparently, made large concessions, but in fact through his influence he was able to control the elections. This council renewed the grant of indulgences, first made by Urban II. in 1095, in furtherance of the first crusade. It also passed additional decrees for enforcing the celibacy of the clergy. III. The council of 1139, under Innocent II., consisting of about 1000 bishops, at which the antipope, Anacletus II., was condemned, and all who had received office under him were deposed. Roger of Sicily and Arnold of Brescia were also condemned. Thirty canons of discipline were published, among which were several against simony, marriage, and immorality among the clergy. IV. The council of 1179, under Alexander III., containing 280 bishops, the most of whom were Latins, was called to correct the abuses which had arisen during the schism brought to a close by the peace of Venice two years before. The most important of the canons published by it decreed that "hereafter the election of the popes shall be confined to the college of cardinals, and two-thirds of the votes shall be required to make a lawful election, instead of a majority only as heretofore." This council also condemned "the errors and impieties" of the Waldenses and Albigenses. V. The council of 1215, usually called the 4th Lateran, was the most important of them all, as it marked the summit of the papal power. It consisted of 71 archbishops, 412 bishops, 800 abbots, the patriarchs of Constantinople and Jerusalem, and legates of other patriarchs and of crowned heads. It made the doctrine of transubstantiation an article of faith; required that all persons, of both sexes, who had reached the years of discretion, should confess to their proper priest at least once a year; appointed the time and place of assembly for another crusade; and laid a foundation for the persecution of the Albigenses and others by anathematizing all hereties who held anything in opposition to the faith; enjoining that, after condemnation, they should be delivered over to the secular arm; excommunicating all who received, protected, or maintained heretics; and threatening with deposition all bishops who did not use their utmost endeavors to clear their dioeeses of them. VI. The council of 1512–17, under Julius II. and Leo X., was important chiefly because it abolished the Pragmatic sanction of Bourges, 1438, wherein France had accepted the decisions of the council of Basle, so far as they were consistent with the

liberty of the Gallican church—and substituted for it the concordat agreed on between Leo X. and Francis I., in which the liberties of the church were greatly restricted. The first article of the concordat declared that the chapters of the French cathedrals should no longer, in case of vacancy, proceed to elect the bishop; but that the king should select a proper person whom the pope should nominate to the vacant see.

LAT'ERITE, a mineral substance, the product of the disintegration and partial decomposition of gneiss. It forms a bright red earth; which, where it abounds, as in some parts of Ceylon, being blown about as a fine dust, imparts its hue to every neglected article, and to the dresses of the inhabitants. The redness of the streets and roads attracts the notice of every stranger at Galle and Colombo. Laterite, however, is not always red. Its redness is supposed to be owing to the presence of iron in considerable quantity. When feldspar preponderates in the gneiss, it is whitish; when hornblende preponderates, it is yellow.

LA'TĒS, *Lates Niloticus*, a fish of the perch family, one of the most delicate and best-flavored fishes of the Nile. It grows to a large size, sometimes 3 ft. long. It is mentioned by several ancient authors. In form it resembles a perch, and the genus is very nearly allied.—Another species of this genus is the VACTI (*lates nobilis*), called *cock-up* by the English in Calcutta, one of the most esteemed fishes of the Ganges, which it ascends as far as the tide does.

LA'TEX, in botany, the sap of plants after it has been elaborated in the leaves. It returns from the leaves to the bark by vessels called *laticiferous vessels*, which branch, unite, and anastomose very variously. They are not always of uniform thickness, but present many distentions, often almost as if articulated. Peculiar currents are observed in the *latex*, which were first pointed out by Schultz, who has bestowed great attention on this subject, and on the branches of physiology connected with it. The latex differs very much in different plants, in color and other qualities, but in all it is full of granules.

LATH, or LATHE, a division of a county, still used in England to designate a number of hundreds amounting to less than a shire. Formerly there was a lathe-reeve, or bailiff, in each lathe. The same number of hundreds which constitute the *lathes of Kent* are called the *rapes of Sussex.* In Ireland the lathe is intermediate between the tything and the hundred.

LATHAM, JOHN, 1740–1837; b. Eltham, Kent, England; pursued his medical studies under Dr. William Hunter, and in the London hospitals; commenced the practice of medicine in 1763, in Dartford; early applied himself to the study of natural history, and assisted sir Ashton Lever in arranging his great museum; in 1775 became a fellow of the royal society, and one of the founders of the Linnæan society; in 1778 made a corresponding member of the London medical society. He received the honorary degree of M.D. from the university of Erlangen, and was elected corresponding member of the natural history society of Berlin and of the royal society of Stockholm. In 1781–85 he published *General Synopsis of Birds*, in 6 vols. 4to. Differing from Linnæus, he divided birds into but two orders, those of land and water. In 1790 he published the valuable book of reference, *Index Ornithologicus.* Retiring from medical practice in 1796, he devoted himself to the study of ornithology. An edition of his works in 10 vols. 4to, with a general index, under the title of *General History of Birds*, was begun in 1821, and finished in 1828. He wrote also treatises on medical science and natural history.

LATHAM, ROBERT GORDON, an eminent English philologist and ethnologist, was b. in 1812 at Billingborough, Lincolnshire. He was educated at Cambridge, and took the degree of M.D., but having made a tour in Denmark and Norway, he was led to direct his attention particularly to the Scandinavian languages. For several years he was professor of the English language and literature in University college, London. As a physician, he has held important appointments. His well-known work, *English Language*, was published in 1841, and has gone through numerous editions. The *Natural History of the Varieties of Mankind* (Lond. 1850) is a valuable contribution to ethnology. Among his other works may be mentioned his edition of Tacitus's *Germania*, with philological and historical notes (1850); *Ethnology of the British Colonies; Man and his Migrations* (Lond. 1851); *Descriptive Ethnology* (1859); *The Nationalities of Europe* (1863); a new edition of Johnson's *Dictionary* (1870); *Outlines of General or Developmental Philology* (1878); *Russian and Turk from a Geographical, Ethnological, and Historical Point of View.*

LATHE. See TURNING.

LATHROP, GEORGE PARSONS. See page 895.

LATHROP, JOHN, D.D., 1740–1816; b. Norwich, Conn.; graduated at Princeton, 1763; taught the Indian school which became Dartmouth college; was a Congregational minister of the Old North church, and of the Second church, Boston, 1768–1816. His degree of D.D. was conferred by Harvard and Edinburgh universities.

LATHROP, JOHN HIRAM, LL.D., 1799–1866; b. Sherburne, N. Y.; graduated at Yale in 1819, and was tutor there 1822–26, after which he entered the legal profession, but soon left it to engage in teaching, first at Norwich, Vt., then at Gardiner, Me. He was professor of mathematics and natural philosophy in Hamilton college, 1829–35, and of law, history, etc., 1835–40, when he became president of the university of Mis-

souri, serving until 1849, after which he became successively chancellor of the university of Wisconsin, president of Indiana university, professor of English literature in the university of Columbia, Mo., and finally its president from 1865 until his death.

LATHROP, JOSEPH, D.D., 1731–1820; b. Norwich, Conn.; graduated at Yale college in 1754; ordained pastor of the Congregational church of West Springfield in 1756, retaining the position 64 years. He received the degree of D.D. from Yale college in 1791, and from Harvard university in 1811. In 1792 he was elected fellow of the American academy of arts and sciences, His works, mostly sermons, were published in 7 vols., the last containing an autobiography.

LATHS AND LATHWOOD. Laths are small strips of wood of various lengths, rarely more than 4 ft.; they are made either by splitting lathwood, which is the Norway spruce fir (*pinus abies*), or else they are sawn from Canada deal. The sawn laths are a modern introduction, due to the development of steam saw-mills in Canada, which thus use up the small portions of the lumber. Laths are used for nailing to the uprights of partition-walls, and to the rafters of ceilings in our buildings; they are placed slightly apart to receive the plaster, which, by being pressed into the intervals between the laths, is retained, and when dry, is held securely on the wall. Slaters' laths are longer strips of wood, nailed on to the framework of the roof, for the purpose of sustaining the slates, which are fastened to the laths by nails.

LATHY'RUS, a genus of plants of the natural *leguminosæ*, sub-order *papilionaceæ*. The leaves are furnished with tendrils, and are pinnate, but often only with one pair of leaflets. The species are numerous, annual and perennial herbaceous plants, natives of temperate countries in the northern hemisphere. Few of them are American. A number are natives of Britain. Some have very beautiful flowers of considerable size, on account of which they find a place in flower-gardens, as *lathyrus latifolius* and *lathyrus sylvestris*, the latter a native of England, and the former of the s. of Europe, both perennials, and known by the name of EVERLASTING PEA. The SWEET PEA (*lathyrus odoratus*), a native of the east, is one of the best known ornaments of our flower-gardens, a hardy annual, esteemed not only on account of the beauty of its flowers, but of their delightful fragrance. Many varieties are in cultivation, differing in color, etc. The most common British species is the MEADOW VETCHLING (*lathyrus pratensis*), with bright yellow flowers. *Lathyrus sativus*, the CHICKLING VETCH or LENTIL OF SPAIN, a native of the s. of Europe, with flowers generally of a bright blue color and winged pods, is cultivated in India and in Germany, France, and other countries for its seeds, the flour of which, however, is mixed with other flour rather than used alone, on account of narcotic qualities which it possesses, and which caused its cultivation for food to be interdicted in Würtemberg in 1671. An incurable paralysis of the limbs has sometimes been produced by it, both in human beings and lower animals. The seeds of *lathyrus cicera*, although sometimes used by the country people of France, are even more dangerous. Those of *lathyrus aphaca*, a species sometimes found on gravelly soils in England, possess similar qualities when ripe, but in an unripe state are eaten with the pods which contain them, and are quite wholesome. *Lathyrus tuberosus*, a native of Germany and other parts of Europe, but not of Britain, is cultivated on the continent for its amylaceous tubers. The tubers are sometimes called *Dutch mice;* in Germany, they are known as *earth-nuts*: The herbage of the plant is relished by cattle.

LATIMER, HUGH, one of the most distinguished of the English reformers, was b. at Thurcaston, in Leicestershire, in the year 1490 or 1491. He was educated at Cambridge, and after a brief period of zealous devotion to the papacy ("I was as obstinate a papist," he says, "as any in England"), he became attached to the new learning and divinity which had begun to establish themselves there. He very soon became a zealous preacher of the reformed doctrines. The consequence of this new-born zeal was, that many of the adherents of the old faith were strongly excited against him, and he was embroiled in many controversies.

The dispute about Henry VIII.'s marriage with Catharine of Aragon brought Latimer more into notice. He was one of the divines appointed by the university of Cambridge to examine as to its lawfulness, and he declared on the king's side. This secured Henry's favor, and he was appointed one of his chaplains, and received a living in Wiltshire. In 1535 he was appointed bishop of Worcester; and at the opening of convocation on June 9, 1536, he preached two very powerful and impressive sermons, urging the necessity of reform. After a while, the work of reform rather retrograded than advanced, and Latimer found himself with his bold opinions in little favor at court. He retired to his diocese, and labored there in a continual round of "teaching, preaching, exhorting, writing, correcting, and reforming, either as his ability would serve, or the time would bear." This was his true function. He was an eminently practical reformer. During the close of Henry's reign, and when the reactionary party, headed by Gardiner and Bonner, were in the ascendant, Latimer lived in great privacy. He was looked upon with jealousy, and closely watched, and finally, on coming up to London for medical advice, he was brought before the privy council, and cast into the Tower.

On the accession of Edward VI. he again appeared in public. He declined, however, to resume his episcopal functions, although his old bishopric was offered to him at

the instance of the house of commons. He devoted himself to preaching and practical works of benevolence. The pulpit was his great power, and by his stirring and homely sermons, he did much to rouse a spirit of religious earnestness throughout the country. At length, with the lamented death of Edward, he and other reformers were arrested in their career of activity. Latimer was put in prison, and examined at Oxford in 1554. After his examination, he was transferred to the common jail there, where he lay for more than a year, feeble, sickly, and worn out with his hardships. Death would not have long spared the old man, but his enemies would not wait for the natural termination of his life. In Sept., 1555, he was summoned before certain commissioners, appointed to sit in judgment upon him and Ridley; and after an ignominious trial, he was condemned to be burned. He suffered along with Ridley "without Bocardo Gate," opposite Balliol college, on Oct. 16, 1555, exclaiming to his companion: "Be of good comfort, master Ridley, and play the man: we shall this day light such a candle, by God's grace, in England, as I trust shall never be put out."

Latimer's character presents a combination of many noble and disinterested qualities. He was brave, honest, devoted, and energetic, homely and popular, yet free from all violence; a martyr and hero, yet a plain, simple-hearted, and unpretending man. Humor and cheerfulness, manly sense and direct evangelical fervor, distinguish his sermons and his life, and make them alike interesting and admirable.

Latimer's sermons were reprinted at London, 2 vols., 1825. The latest edition is by Rev. G. Corrie, 4 vols., 1845.—See Tulloch's *Leaders of the Reformation* (1859); and *Latimer*, a biography, by Demaus (1869).

LATIN CHURCH. The Christian church having been disrupted in the 9th c. the two divisions were called the eastern and western, or Greek and Latin churches, the term Latin having reference to the section which recognized the Roman pontiff as its governing head, and whose services were conducted in the Latin language. See Roman Catholic Church, *ante.*

LATIN CROSS, a cross with the lower limb considerably longer than the other three.

LATIN EMPIRE, the name given to that portion of the Byzantine empire which was seized in 1204 by the crusaders, who made Constantinople their capital. It was overthrown by the Greeks in 1261. See Byzantine Empire.

LATI'NI, an Italian people, who in prehistoric times had established themselves on the lower part of the Tiber and the Anio, between the sea and the nearest Apennines. The limits of their territory (Latium) cannot, however, be fixed with precision. The Latini had the Volsci for neighbors on the s., the Æqui and Hernici on the e., and the Sabines on the n.; but after the subjugation of these tribes by the Romans, the name of Latium was given to the whole of the conquered districts. The original and strictly ethnological Latium is called by Pliny, *Latium Antiquum*, and the newer and added portions, *Latium Adjectum.* The legend which forms the subject of the *Æneid*, the great national epic of the Romans, and which describes the introduction of a third or *Trojan* element in the persons of Æneas and his companions, possesses no historical value. The principal towns of the Latins were Laurentum, Lavinium, Alba Longa (q.v.), from which, according to the legend, went forth the founders of Rome, Ostia, Antium, Tusculum, Prænestе, and Tibur

LATI'NI, Brunetto, 1230–94; b. Italy; son of Bonacorso. Exiled in 1260 on account of his devotion to the cause of the Guelphs, of whom he was the leader, he took up his residence in Paris as teacher of belles-lettres, remaining there many years. In 1284 he held the office of syndic in Florence, whence he had returned in the change of dynasty, and became the tutor of Dante. He is celebrated as an orator, and poet. His portrait is one of the four which decorate the tomb of Dante, being set in a medallion in the cupola. In 1353 he published *Tesoretto*, a didactic poem, and subsequently *Livre du Trésor*, a compilation in French, containing extracts from classical history, philosophy, and rhetoric; in the first part mention is made of the use of the mariner's compass. Italian translations of this work were published in 1474 and 1824. Previous to 1863 his manuscripts were published by F. A. P. Chabaille in his *Documents Inédits de L'Histoire de France.* In 1855 *Livre du Trésor* was published in Paris at the public expense. He was buried in the church of Santa Maria Novella at Florence.

LATIN LANGUAGE and LITERATURE.—*Language.*—The Latin language is a member of the great family commonly called Indo-Germanic, Indo-European, or Aryan. It is, therefore, closely allied to the Greek, Persian, German, Celtic, English, and many other tongues and dialects of Europe, and to all these its kindred is more or less clearly shown by identity of stems and similarity of structure. It was primarily developed among the people who inhabited that part of western Italy which lies between the rivers Tiber and Liris; and though the city of Rome stamped her name on the political institutions of the empire, yet the standard tongue of Italy still continued to be called the *Latin* language, *not* the Roman. As the Roman conquests extended, Latin spread with equal strides over the conquered countries, and was generally used by the educated classes in the greater part of Italy, in France, Spain, Portugal, Germany, and other Roman provinces. But even in Italy itself, and in Latium, there seem to have been two forms of the language, differing very considerably from each other—a polished dialect

and a rustic one—a language of books and of the higher classes, and a language of conversation and everyday life among the vulgar. It was in the last years of the republic and the first of the empire that the polished language reached its highest point of perfection in the writings of Cicero, Horace, Virgil, and others. But by the influx of strangers, by the gradual decline of Roman feelings and Roman spirit, and by the intermixture of the classic forms with the dialects of the provinces, it became corrupted, the process of deterioration going on with double rapidity after the dismemberment of the Roman empire in the 5th century. Thus were formed the modern French, Spanish, Italian, and Portuguese. The English language also owes much to Latin, both directly by derivation from the classical forms, and at second-hand through the Norman-French. Latin continued to be the diplomatic language of Europe till a comparatively recent period. It is still the medium of communication among the learned of the world, and is now, as it has always been, the official language of the Roman Catholic church. For a discussion as to the origin and sources of the Latin language, see Donaldson's *Varronianus.*

The grammar of the Latin language has been studied and illustrated by many celebrated scholars from Varro (116–28 B.C.) down to Zumpt, Grotefend, Kuhner, and Madvig, through a long list of names, such as Donatus, Priscian, Laurentius Valla, Manutius, Melanchthon, Scaliger, Perizonius, Schneider, Linacre, Ruddiman, Alvarez, and many more. In lexicography, Perotti, Stephanus, Faber, Gesner, Forcellini, Scheller, Freund, Georges, and others of less note, have done valuable service.

Literature.—The Roman republic had well-nigh run its course ere it possessed a writer or a literature worthy of the name. A kind of rude poetry was cultivated from the earliest times, and was employed in such compositions as the Hymn of the Fratres Arvales (dug up at Rome in 1778, and in the first burst of enthusiasm excited by its discovery, assigned to the age of Romulus), in the sacred songs to particular deities, and in triumphal poems and ballads, in the Fescennine Carols, and other rude attempts to amuse or dupe an illiterate and vulgar populace. And even when, in later years, the Romans did begin to foster a literary taste, the rage for Greek models hindered every effort at original thought. It was considered highly meritorious to imitate or translate a Greek writer; while, on the other hand, it was deemed dishonorable to follow a Latin author. Such was the feeling even in the days of Horace and Virgil, both of whom are largely indebted to their Greek models. The first period of Roman literature may be said to extend from 240 B.C. to the death of Sulla (78 B.C.); the second, or golden age, from the death of Sulla to the death of the emperor Augustus (14 A.D.); the third, or silver age, from the death of Augustus to the death of Adrian (138 A.D.), and the fourth from the death of Adrian to the overthrow of the western empire in 476 A.D. In the first period the most distinguished names are those of Livius Andronicus, a writer of dramas adapted from the Greek, whose first play was brought out in 240 B.C.; Ennius, whose chief work was an epic poem on the history of Rome, and who also wrote dramas and satires; with Nævius, Plautus, and Terence, the comedians. The second period is adorned by Varro, who wrote on agriculture, grammar, antiquities, etc.; by Lucretius, a writer of the didactic epic; by Virgil, who, to his great epic, the *Æneid*, added pastoral and agricultural poetry in the *Eclogues* and *Georgics;* by Horace, in lyric verse and in satire; by Catullus, in lyric; by Tibullus and Propertius, in elegy; by Livy, Cæsar, Sallust, and Nepos, in history and biography; by Cicero, in philosophy, rhetoric, and oratory; and by Ovid, in elegiac and didactic poetry. The third period boasts of Tacitus, the historian and biographer; of the elder Pliny, the naturalist; of Persius and Juvenal, the satirists; of Martial, the epigrammatist; of Columella and Lucan, the didactic and epic poets; of Statius, Silius Italicus, and the younger Pliny, with many others of lesser note. The fourth period produced few men of name; but among those who are best known may be mentioned the emperor M. Aurelius, Ammianus Marcellinus, Gellius, Justin, Appuleius, Lactantius, Eutropius, Macrobius, Calpurnius, Boëthius, Paullinus, and Claudianus, the last of the Roman classic poets.

The spread of Christianity gave rise to the ecclesiastical poetry of the middle ages, which departed from the classic models, and struck out for itself a new type. It disregarded the restrictions of quantity and meter, and substituted accent and rhyme as the regulating principles of its form. The most famous name in the earlier period is that of Prudentius—to whom we may add Sedulius, St. Hilary, St. Ambrose, and St. Gregory the great; and in the later period, Fortunatus; the emperor Charlemagne, author of *Veni Creator;* Bede (the venerable); Bernard de Morley; Adam of St. Victor; Thomas of Celano, author of the famous *Dies Iræ;* James de Benedictis, author of the equally famous *Stabat Mater;* and St. Thomas Aquinas.—See the histories of Latin literature by Bernhardy, Munk (2d ed. 1877), and Teuffel; also by Simcox (1883).

LATIN UNION. By the monetary treaty of Paris of Dec. 23, 1865, France, Belgium, Switzerland, and Italy entered into a mutual agreement concerning the monetary and coinage policy, which took effect Aug. 1, 1866. That association of states is called the Latin union. Greece and Roumania came into the association in April, 1867. The following is the substance of the treaty:

Article 1. "Belgium, France, Italy, and Switzerland unite to regulate the weight, title, form, and circulation of their gold and silver coins. No change is made for the present in legislation relative to copper coins for the four countries."

Art. 2. "The high contracting parties bind themselves not to coin, or permit to be coined, any gold other than in pieces of 100, 50, 20, 10, and 5 francs in weight, standard, tolerance, and diameter as follows: All these coins shall be of the fineness or standard of .900, with a tolerance of two-thousandths above or below the legal standard. The tolerance in weight shall be, for the 100 and for the 50 franc pieces, one-thousandth above or below; for the 20 and 10 franc pieces, two-thousandths; for the 5 franc pieces, three-thousandths. [The weights and diameters of the gold coins here follow in French measure. Ed.] The different states will receive all the above coins when not worn to one-half per cent, or the devices effaced."

Art. 3. "The contracting governments bind themselves not to coin, or permit to be coined, silver pieces of 5 francs except of the weight, standard, tolerance, and diameter fixed."

Art. 4. "The contracting parties will coin hereafter pieces of 2 and 1 franc, 50 and 20 centimes, only to the fineness of .835; tolerance of standard $\frac{\cdot 003}{1000}$th; of weight $\frac{\cdot 005}{1000}$ for the first two, $\frac{007}{1000}$ for the 50 centime piece, and .01 for the 20 centime piece." [Here follows the French weight and measure of the silver coins. Ed.]

Art. 5. [Stipulates for the withdrawal and recoinage of silver pieces of 2 francs and under, not of the required standard, within a stipulated time.]

Art. 6. "The silver coins authorized in article 4 shall be a legal tender between individuals of the state in which they are issued to the sum of fifty francs. The nation issuing them shall receive them in any amount."

Art. 7. "The public banks of each of the four countries will receive the coins of article 4, to the sum of 100 francs, in payment to said banks." [The remainder of the article relates to exceptions for Swiss coins.]

Art. 8. "Each of the contracting governments binds itself to receive from banks or individuals the small coins they have issued, and return the equivalent in current coin (gold, or 5 franc silver pieces), provided the sum presented be not less than 100 francs. This obligation shall extend two years beyond the expiration of this treaty."

Art. 9. "The high contracting parties agree not to issue a greater amount of these 2 and 1 franc, 50 and 20 centime pieces of article 4, than six francs for each inhabitant. The amount thus fixed in accordance with the last census and the presumed increase of population is fixed at (1866), for Belgium, 32,000,000 francs; for France, 239,000,000 francs; for Italy, 141,000,000 francs; for Switzerland, 17,000,000 francs. Exclusive of the above sums, the different governments can issue of coins already in circulation in the following proportion: France, in 50 and 20 centime pieces, by the law of May 25, 1864, about 16,000,000 francs; Italy, in 2 and 1 franc, 50 and 20 centime pieces, by the law of the 24th of Aug., 1862, about 100,000,000 francs; Switzerland, in 2 and 1 franc pieces by the law of Jan. 31, 1860, about 10,500,000 francs."

Art. 10. "Hereafter the year of issue to be stamped on all the gold and silver coins issued by the four governments."

Art. 11. "The contracting governments shall annually state the quantity of their issue of gold and silver coins, and the amount collected for melting. They shall likewise give notice of important facts in regard to the reciprocal circulation of their issues."

Art. 12. "Any other nation can join the present convention by accepting its obligations, and adopting the monetary system of the union in regard to gold and silver coins."

Art. 13. [Binds the contracting parties to pass laws to carry out the foregoing agreements.]

Art. 14. "The present convention shall remain in force till Jan 1, 1880. If it be not repealed a year before the expiration of that term, it shall remain in force for an additional period of 15 years, and so on until repealed."

Art. 15. "The present convention shall be ratified, and the ratifications exchanged in Paris, within six months, or less time if possible." [It was so ratified.]

On Jan. 30, 1874, at a conference of the Latin union, a supplementary treaty was made between the high contracting parties, by which they agreed to limit the coinage for the year 1874, of 5 franc pieces, to 12,000,000 francs in Belgium; 60,000,000 francs in France; 40,000,000 francs in Italy; and 8,000,000 in Switzerland; in all, 120,000,000 francs; and the delivery of coins upon mint receipts of Dec. 31, 1873, to the amount of nearly 50,000,000 francs, was applicable on these quotas. By a special article, Italy was allowed to coin, for the reserve of her national bank, 20,000,000 francs additional in 5 franc pieces.

The two annual conferences of the union in Feb., 1875 and 1876, made the same limitation for those years respectively, which were subsequently enacted by the respective governments; but a small additional issue was allowed to Greece in 1876.

The conference of 1877 entirely suspended the coinage of 5 franc pieces, except 9,000,000 francs for Italy.

By a law of Dec. 18, 1873, Belgium has the power to suspend the coinage of silver entirely. France passed a law to the same purport in 1876. Switzerland has one to the same effect. It will be observed that the treaty of 1865 limits the coinage of silver as to maximum, but does not make any coinage obligatory. The actual coinage, therefore, cannot be inferred from it.

In the autumn of 1878, through a conference in Paris, the same nations renewed their monetary treaty as it was, "in all that relates to fineness, weight, denomination, and currency of their gold and silver coin." Article 9 of the new treaty guarantees to each state free coinage of gold (excepting gold 5 franc pieces, of which the coinage is suspended), and provides that "the coinage of silver 5 franc pieces is provisionally suspended," but "it may be resumed when a unanimous agreement to that effect shall be established between all the contracting states." The treaty is in force by its term till Jan. 1, 1886. In 1875 Holland suspended the right of private individuals to have silver coined at her mint, which law is believed to be still in force. Being a party to the union, her act becomes a factor in the general policy of the union.

In view of the foregoing facts, and the further fact that France holds more than 2,500,000,000 francs in silver coin within her borders, it is not difficult to see that she has directed the legislation of the union with consummate ability to prevent a large decline in its value. Notwithstanding the suicidal attempts in the legislation of other nations to demonetize it, she has succeeded not only in saving her own capital in silver, without loss of value in its home circulation, but in acquiring it at reduced cost from her neighbors. See MONETARY CONFERENCES, INTERNATIONAL.

LATINUS, legendary King of Latium, son of Faunus and the nymph Marica, and father of Lavinia, wife of Æneas, who, on the death of Latinus, succeeded to the throne of Latium.

LATITAT, an old form of writ in England which commenced an action in the court of queen's bench; now obsolete.

LAT'ITUDE AND LON'GITUDE, in geography, denote the angular distances of a place on the earth from the equator and first meridian respectively; the angular distance in longitude being found by supposing a plane to pass through the place, the earth's center, and the poles, and measuring the angle made by this plane with the plane of the first meridian; the angular distance in latitude being found in the same manner, but substituting the two extremities of an equatorial diameter for the poles; or, more simply, latitude is the angle made by two lines drawn from the earth's center—the one to the place, the other to the equator at the point where it is crossed by the meridian of the place. Latitude is reckoned from the equator to the poles, a place on the equator having lat. 0°, and the poles 90° n. and 90° s. respectively. Longitude is reckoned along the equator from the first meridian; but as nature has not, as in the case of latitude, supplied us with a fixed starting-point, each nation has chosen its own first meridian; thus, in Great Britain and her colonies, in Holland, and other maritime states, longitude is reckoned from the meridian which passes through Greenwich; in France, from that through Paris, etc.; and in many old charts, from Ferro (one of the Canary isles), or from the Madeira isles. It is reckoned e. and w. from 0° to 180°, though astronomers reckon from 0° w. to 360° w., and never use east longitude. It will easily be seen that if the latitude and longitude of a place be given, its exact position can be determined, for the latitude fixes its position to a circle passing round the earth at a uniform fixed distance from the equator (called a parallel of latitude), and the longitude shows what point of this circle is to be intersected by the meridian of the place, the place being at the intersection.

The determination both of latitude and longitude depends upon astronomical observation. The principle on which the more usual methods of finding the latitude depend will be understood from the following considerations: To an observer at the earth's equator, the celestial poles are in the horizon, and the meridian point of the equator is in the zenith. If now he travel northwards over one degree of the meridian, the north celestial pole will appear one degree above the horizon, while the meridian point of the equator will decline one degree southwards; and so on, until, when he reached the terrestrial pole, the pole of the heavens would be in the zenith, and the equator in the horizon. The same thing is true with regard to the southern hemisphere. It thus appears that to determine the latitude of a place we have only to find the altitude of the pole, or the zenith distance of the meridian point of the equator (which is the same thing as the complement of its altitude). The altitude of the pole is found most directly by observing the greatest and least altitudes of the polar star (see POLE), or of any circumpolar star, and (correction being made for refraction), taking half the sum. Similarly, half the sum of the greatest and least meridian altitudes of the sun, at the two solstices, corrected for refraction and parallax, gives the altitude of the meridian point of the equator. The method most usual with navigators and travelers is to observe the meridian altitude of a star whose declination or distance from the equator is known; or of the sun, whose declination at the time may be found from the *Nautical Almanac;* the sum or difference (according to the direction of the declination) of the altitude and declination gives the meridian altitude of the equator, which is the co-latitude. Other methods of finding the latitude require more or less trigonometrical calculation.

The determination of the longitude is by no means so readily accomplished. Various methods have at different times been proposed, most of which are only fitted for observatories. Among these may be classed those which depend upon the determination of the local time of the occurrence of certain celestial phenomena, such as the eclipses of

the sun, moon, or Jupiter's satellites, occultations of fixed stars by the moon, the time occupied in the moon's transit over the meridian, etc.; and comparing the observed local time with the calculated time of the occurrence, at some station whose longitude is known (e.g., Greenwich), the difference of time when reduced to degrees, minutes, and seconds, at the rate of 360° to 24 hours, gives the difference of longitude. The two methods in use among travelers and on board ship are remarkable for their combination of simplicity with accuracy. The first consists merely in determining at what hour on the chronometer (which is set to the time at Greenwich, or some place of known longitude) the sun crosses the meridian. It is evident that as the sun completes a revolution, or 360°, in 24 hours, he will move over 15° degrees in 1 hour, or 1° in 4 minutes. Now, if the watch be set to Greenwich time—viz., point to 12 o'clock when the sun is on the meridian of Greenwich, and if at some other place, when the sun is on the meridian there, the watch points to 3 hours 52 minutes, the difference of longitude is 58°, and the longitude will be w., as the sun has arrived over the place *later* than at Greenwich; similarly, if the sun be over the meridian of a place at 9 hours and 40 minutes A.M., the longitude is 35° e. (by the chronometer). The accuracy of this method depends evidently upon the correctness of time-keepers (see WATCHES). The other method—that of "lunar distances"—may be briefly explained as follows: The distance of the moon from certain fixed stars is calculated with great accuracy (about three years in advance) for every three hours of Greenwich time, and published in the *Nautical Almanac*. The moon's distance from some one star having been observed, and corrected for refraction and parallax, and the local time having also been noted, the difference between this local time and *that time in the table which corresponds to the same distance* gives the longitude, which may be converted into degrees as before. It may also be mentioned that the longitude of all places connected by telegraph with the reckoning-point can be easily found by transmitting from the latter a signal to an observer in the place, at a certain fixed time (reckoned in solar time at the reckoning-point), and by the observer instantly and accurately noting the local time at which the signal arrived; the difference of the two times, reduced in the way shown above, will give the longitude, the time occupied in the transmission of the signal being so small as to be negleted. When applied to a heavenly body, the terms latitude and longitude have the same relations to the ecliptic and its poles, and to the point on the ecliptic called the equinox (q.v.), that terrestrial latitude and longitude have to the equator and a first meridian. The positions of a heavenly body relatively to the equator are called its declination (q.v.) and right ascension (q.v.).

LATITUDINARIANS, in ecclesiastical history, a class of English divines in the reign of Charles II., towards the close of the 17th c., who were opposed both to the high tenets of the ruling party in the church and to what they regarded as the fanatical views of many dissenters. They considered as unimportant the matters of dispute between high-churchmen and Puritans, and endeavored to take a middle course between the strict Presbyterians and independents, on the one hand, and the more intolerant Episcopalians on the other. They were branded by both parties as deists and atheists as well as latitudinarians. They were generally low-churchmen, and their creed was nearly that of the Dutch Arminians. Among the prominent of this class were Hales, Chillingworth, Cudworth, Tillotson, Henry More, Wilkins, and Gale. They were raised to important places during the reign of Charles. Their principles were explained and defended by Fowler, bishop of Gloucester, in a work entitled *The Principles and Practices of Certain Modern Divines of the Church of England, abusively called Latitudinarians, Truly Represented and Defended, by way of Dialogue.* As a theological term it is now applied generally to those who hold opinions at variance with the more rigid interpretation of Scripture and church traditions. The name is given also to the modern broad-church party.

LATIUM, a country of Italy formerly occupied by the Latini, now covered by the Pontine marshes and uninhabitable. The Latins, one of the oldest known nations of Italy, are said to have migrated from the central Apennines, and settled the land between the Anio, the Tiber, the Alban mountains, and the sea, which was named Latium after them. Over these plains they spread themselves in small settlements, which grew into villages, and even became important towns long before the foundation of Rome. Among these towns were Laurentum, Lanuvium, Alba Longa, Tusculum, Aricia, etc. These Latin communities were united by religious rites, which were celebrated in a temple of Diana in a grove near Aricia; in a temple of Venus between Lavinium and Ardea; and elsewhere. The original deities of the Latins were Saturnus, Janus, and Faunus; Venus and others appear to have been introduced into their mythology at a later period. The towns of Latium were strongly built in positions favorable for defense, and surrounded by massive walls. This was a necessary precaution, as the growing wealth and power of the inhabitants brought them into conflict with their neighbors, the Volscians, and with Rome. From the time of Tullus Hostilius there was constant warfare with the latter country, until, under the consulship of Spurius Cassius and Postumus Cominius, in the beginning of the 5th c. B.C., a solemn league and treaty was established between Rome and Latium, which existed for about 100 years. But after the conclusion of the invasion of the Gauls, and when these barbarians had retired

from the ruined city, the Latins, Volscians, Etruscans, and other ancient enemies of Rome took advantage of her extremity to attaek her. They were, however, defeated, and foreed to make peaee on terms favorable to Rome. This condition was not, however, permanent, the Latins being always aggressive, and jealous of the supremacy of Rome. The "great Latin war," as it is termed in history—said to be the greatest in which Rome ever engaged—oecurred in 340 B.C.; lasted during 3 years; and ended in a decisive battle in the plain near the base of Vesuvius, in which Rome was entirely successful, and barely one-fourth of the Latins escaped. Soon afterwards they made their submission to Rome, and a portion of their land was taken from them. Then city after city of Latium was brought under subjeetion; the general assemblies of the Latins for self-government were abolished; the walls of Velitræ—a Latin city, formerly a Roman colony—were razed to the ground, and its senators banished; and thus terminated the existence of Latium as an independent state. It is said of Latium that probably never on the earth's surface were crowded together so many cities in so small a spaee. They numbered about 60 authentic towns, on an extent of territory 64 m. by 28 in dimensions. After their subjugation the inhabitants permitted their system of drainage and sewerage to become disordered; the water-eourses stagnated; and in plaee of the thriving, busy plain, alive with bustling cities, there grew to be a vast swamp, unproduetive and unhealthy, the present Roman Campagna. This locality is not only malarious, but in every way desolate and forbidding. The ground is voleanic, the many lakes whieh cover it being formed in craters. Hot sulphur springs exist in the distriet lying between Rome and Tivoli. The marshes whieh existed at the period when Latium was in its prime, but were drained in the inhabited portion, were the favorite habitat, in their unreelaimed part, of wild boars, whieh were hunted for the tables of the Roman aristoeraey. Even at the present time, the Pontine marshes are famous for this species of game.

LATONA, in Greeian mythology, the mother of Apollo and Diana by Jupiter. When pursued by the jealous Juno, she finally found refuge on the floating island of Delos, whieh was made fast for her by order of Neptune. She had no temples, but was worshiped only in conneetion with her ehildren.

LATOUR D'AUVERGNE, Théophile Malo Corret de, b. Nov. 23, 1743, at Carhaix, in Finistère, France, of an illegitimate branch of the family of the dukes of Bouillon. He entered the army in 1767; and in 1781 served under the duke de Crillon at Port Mahon. On the outbreak of the revolution he attaehed himself to the national cause. The army of the Alps, whieh operated against the Sardinians in 1792, contained no braver officer than Latour. He was the first to enter Chambéry, sword in hand, at the head of his company. But he would not hear of advaneement in military rank; and, in the following year, though placed at the head of a column of 8,000 grenadiers, in the army of the Pyrenees, he eontinued to wear the uniform of a captain. His corps obtained the name of the "infernal column," on aecount of the dread whieh its bayonet-charges inspired. When he was subsequently with the army of the Rhine, in 1800, as he still refused all promotion, Bonaparte bestowed on him the title of "The First Grenadier of Franee." He was killed, on June 27 of that year, at Oberhausen, near Neuburg, in Bavaria. The heroism and magnanimity of Latour were wonderful; and Freneh biographies are full of instances of his daring valor, his Spartan simplicity of life, and his chivalrous affection for his friends. When he died, the whole French army mourned for him three days; every soldier set aside a day's pay to purehase a silver urn to hold his heart; his saber was placed in the ehureh of the Invalides; and each morning, till the elose of the empire, at the muster-roll of his regiment, his name eontinued to be called, and the oldest sergeant answered to the call: "*Mort au champ d'honneur*" (Dead on the field of honor). Latour was not only a brave warrior, but also a man of a studious disposition, and the author of two works, *Nouvelles Recherches sur la Langue l'Origine et les Antiquités des Bretons* (1792), and *Origines Gauloises* (1801), whieh is, however, only a third edition of the former.

LA TRAPPE, a narrow valley in Normandy, in the department of Orne, closely shut in by woods and rocks, and very diffieult of access. It is notable as the place in which the Trappists (q.v.) originated.

LATREILLE, Pierre-Andre, an eminent naturalist, b. in 1762 at Brive, in the department of Corrèze, Franee. In 1778 he was placed in the college of cardinal Lemoine, at Paris, to be educated for the church. Here he acquired the friendship of Haüy (q.v.), and devoted himself almost exclusively to the study of insects. He completed his edueation for the church, and reeeived ordination, but gave himself, however, ehiefly to entomologieal studies. His first publication was on the *mutillas* of France, inseets of the order *hymenoptera* (1792): whieh was followed by very many other works of the same kind, artieles in encyclopædias, magazines, etc. In 1796 he published, at Brive, his first great work, *Précis des Caractères Génériques des Insectes, disposés dans un Ordre Naturel.* It was an important step towards a truly natural system of entomology, although really a mere sketeh of a system. An interesting ineident falls here to be mentioned. During the fury of the French revolution, Latreille was condemned to *déportation,* and sent to prison at Bordeaux, awaiting the execution of his sentence. The surgeon who visited the prison observing the prisoner attentively look-

ing at a small insect (*necrobia ruficollis*), was informed by him that it was very rare, and that he wished to transmit it to two young naturalists in Bordeaux. His wish was gratified, and the young naturalists—MM. Dargelas and Bory de Saint-Vincent—exerted themselves to obtain his release, in which they ultimately succeeded. Latreille always remembered this with great gratitude, and has commemorated the incident in some of his works. A figure of the insect is engraved on his tomb. Latreille was again in danger in 1797, when he was proscribed as an *emigré;* but again he escaped through the influence of friends. Having, after the revolution, relinquished all thoughts of the church, he entirely devoted himself to natural history; was received as a corresponding member of the institute; and was employed in the arranging of insects in the museum of natural history. He died at Paris, Feb. 6, 1833, at the age of 70. His works on natural history are very numerous. The most important, besides those already noticed, are: *Histoire des Salamandres* (Par. 1800); *Histoire Naturelle des Singes* (2 tom., Par. 1801); *Histoire Naturelle des Crustaces et Insectes* (14 tom., 1802–5); *Histoire Naturelle des Reptiles* (4 tom. Par., 1802); *Genera Crustaceorum et Insectorum* (4 tom., Par., 1806–9); *Considérations sur l'Ordre Naturel des Animaux*, etc. (Par. 1810); *Familles Naturelles du Règne Animal* (Par. 1825); *Cours d'Entomologie* (2 tom. Par. 1831–33). Latreille contributed greatly to the present natural system of entomology; and his labors in other departments of natural history were not inconsiderable.

LA'TRINES, conveniences for soldiers in camps and barracks. Much attention has of late been devoted to their construction, a large percentage of the army sickness having been traced to their defective and impure condition.

LATROBE, Benjamin H., b. Philadelphia, 1806; a civil engineer and railroad manager; studied and practiced law for a few years, then became an engineer; in 1830 had charge of the construction of the Baltimore and Ohio railway between Point of Rocks and Harper's Ferry; and became chief-engineer of that road in 1842. He was afterwards chief-engineer and president of several railway companies, and an esteemed consulting engineer. He d. 1878.

LATROBE, Benjamin Henry, 1767–1820; b. England; d. New Orleans; an English architect who came to America in 1796, and had charge of the works for the improvement of the navigation of James river, Va., and soon after became state engineer; subsequently was employed by the U. S. government in constructing light-houses and fortifications on the coast, and as inspector of public works. He designed the old national bank in Philadelphia, the cathedral and merchants' exchange of Baltimore, the old hall of the house of representatives at Washington; and died while engaged on the water-works of New Orleans.

LATRUNCULI, the name given to an ancient Roman game, whose origin is of unknown date, but attributed by some to Palamedes, to whom is also ascribed the invention of chess, backgammon, and dice. The game resembled chess in some respects, being played on a board, and with pieces of different colors. The number of pieces varied between five and twelve, and it was at first strictly a game of skill. Later, the introduction into it of the use of *tesseræ*, or dice, brought into it the element of chance. It is possible that this was one of the first crude attempts, out of which gradually grew the game of chess.

LAT'TEN, a term now seldom used. It is applied to sheet-brass, and previous to the reforms in the customs tariff, the name was regularly recognized. There are three varieties of latten known—*black*, *shaven*, and *roll*. The first is rolled brass about the thickness of ordinary pasteboard, and unpolished: the second as thin as writing-paper; and the third is either of the other kinds polished on both sides. The term latten is of some archæological interest, as it is not known what is meant by the "mines of latten" mentioned in the time of Henry VIII., and frequent mention is made of this metal in various public records, without explanation of its nature.

LATTER-DAY SAINTS. See Mormons, *ante*.

LAT'TICE-BRIDGE, so called from having the sides constructed with cross-framing resembling lattice-work (Fr. and Ger. *latte*, a lath). See Frame-bridge. Many very large bridges of this kind have been erected with timber-framing in America. That over the Susquehanna at Columbia is about 1¼ m. long, and has 29 spans, each 200 ft. wide. The principle on which many lattice-bridges are constructed resembles that of the trussed rafters of roofs, with a king-post or hanger in center. Each span consists of a series of these rafters, so arranged that the head of one rafter is immediately over the feet of the two adjoining rafters. Other lattice-bridges are constructed with diagonal braces, united with strong pins, and without suspension-rods. The former method is the stronger, as in the latter the strain comes chiefly on the pins uniting the diagonal cross-braces. Lattice-bridges are also constructed in iron, and have been much used for railway purposes. The first application of the lattice principle to iron was made by Mr. George Smart, who registered, in 1824, his "patent iron bridge." Many modifications of the same principle have been adopted—the horizontal ties at top and bottom being always of wrought iron, and the diagonals either simple wrought-iron bars, or hollow malleable-iron tubes, or of cast iron. The wrought-iron tubular

bow-bridge, now in very common use in railway construction, is a combination of the tubular and the lattice principle. See TUBULAR BRIDGES.

LATTICE LEAF, LACE LEAF, WATER YAM, or OUVIRANDRANO, *Ouvirandra fenestralis,* a plant referred by some botanists to the natural order *juncagineæ,* and by some to *naiadaceæ.* It is a native of Madagascar, and grows in running streams. It has a root-stock about the thickness of a man's thumb, 6 to 9 in. long, often branching, internally white, with a light-brown skin, farinaceous, and used for food. The crown of the root is under water, and the leaves float just under the surface; the flower-stalks rise above it. The flowers are in forked spikes. The leaves are very curious; the blade resembling lattice-work or open needle-work of a most regular pattern; the longitudinal ribs being crossed at right angles by fine tendrils, and the intervening spaces being open. The blade is of an elongated oval form, abruptly acuminated; the length of the stalk varies according to the depth of the water. The whole appearance of the plant is very beautiful. It grows well in hot-house aquaria in Britain.

LATTICED, or TREILLÉ, in heraldry, is a term applied to a shield covered with a decoration resembling fretty (q.v.), but differing in this respect, that the pieces do not cross over and under each other: those directed from dexter chief to sinister base are placed uppermost and *cloué,* that is, have nails inserted at the joints.

LATUDE, HENRI MASERS DE, 1725–1805; b. France; having served a number of years in the French army, began the study of mathematics in Paris. A trick, easily discovered, by which he hoped to gain the favor of Mme. de Pompadour, made him the victim of unmerited condemnation for the period of 35 years. In 1749 he attempted to prove his disinterested admiration for her by warning her of an attempt upon her life, to be made through a dangerous powder that she was to receive in a package. Finding that it emanated from him, a simple ruse to gain her favor, she caused his arrest, and with inexcusable obduracy kept him imprisoned in the Bastile and at Vincennes until her death. In 1750, 1756, and 1764 he made unsuccessful escapes; in the first instance voluntarily surrendering himself within a week, in the second being rearrested in Amsterdam, and the third time, soon after his transfer to the prison at Vincennes, he made his escape and was retaken. His imprisonment subsequent to the death of Mme. Pompadour is unaccountable, he having led a quiet, thoughtful life during incarceration, when not suffering from too rigorous treatment. In 1777, having been liberated through the intercession of Malesherbes, he was soon after arrested again, and kept in a dungeon at Bicêtre for many years. At length, in 1784, with the change brought about by a turn in political affairs, the popular voice being in his favor, he was liberated and pensioned, under the patronage of Mme. Legros. In 1793 he claimed damages from the heirs of Mme. de Pompadour, and received 10,000 livres. In 1789, besides several essays, he published *Mémoire de M. de Latude, ingenieur;* in 1791–92 *Le Despotisme Dévoilé, ou Mémoires de Latude* was published by Thierry; and in 1838 *Mémoires inédites de Henri Masers de Latude.*

LAU'BAN, a t. of Prussia, in the province of Silesia, is situated in a charming valley on the Queis, 40 m. w.s.w. of Liegnitz. Pop. '80, 10,775, who are engaged chiefly in woolen, linen, and cotton weaving, bleaching, printing, dyeing, and bell-founding.

LAUBE, HEINRICH, 1806; b. in Silesia, became professor at Breslau, and in 1831 settled in Leipsic, to follow a literary career. In 1834 he journeyed in Italy. On his return to Germany he was implicated in the organization of the *Burschenshaft,* a secret organization of young Germans, mostly collegians, to promote progressive reforms in the German government. The royal government sought the suppression of this society, and Laube was imprisoned nine months in Berlin for his participation in its work. After his release, he renewed his connection with it, and was again imprisoned from 1837 to 1839. On his release he visited France and Algeria. After the revolutionary movements of 1848 he was made deputy from a Bohemian town to the parliament of Frankfort, and voted with the moderate party. In 1849 he went to Vienna and became director of the court theater, and remained twenty years. In 1869 he became director of the theater of Leipsic. He is a writer of lively powers of observation and wit, one of the recognized members of what is called the "young Germany" school in literature, and rather distinguished by the beauty of his style than the peculiarities or value of his thoughts. From 1833 to 1844 he was chief editor of fashionable and theatrical journals, and a prolific author. The following are among his works: *Das Neue Jahrhundert,* 1833; *Modernen Characteristiken,* 1835; *Geschichte der Deutschen Literatur,* 1840; *Das Erste Deutsche Parlament,* 1849; *Das Burgtheater,* 1868; *Französische Lustschlösser,* 1840; *Das Junge Europa,* 1833–37; and several dramas.

LAUD, WILLIAM, Archbishop of Canterbury, was the son of a clothier in good circumstances, and was b. at Reading, in Berkshire, Oct. 7, 1573. He entered St. John's college, Oxford, in 1589, became a fellow in 1593, and took his degree of M.A. in 1598. Ordained a priest in 1601, he soon made himself conspicuous at the university by his antipathy to Puritanism; but being then a person of very little consequence, he only succeeded in exciting displeasure against himself. Yet his learning, his persistent and definite ecclesiasticism, and the genuine unselfishness of his devotion to the church, soon won him both friends and patrons. In 1607 he was preferred to the vicarage of Stan-

ford in Northamptonshire, and in 1608 obtained the advowson of North Kilworth in Leicestershire. In both of these livings he showed himself an exemplary clergyman according to the high-church pattern—zealous in repairing the parsonage-houses, and liberal in maintaining the poor. In 1609 he was appointed rector of West Tilbury, in Essex; in 1611—in spite of strong opposition—president of St. John's college; in 1614 prebendary of Lincoln; and in 1615 archdeacon of Huntingdon. King James now began to recognize what sort of a man Laud was, and to see that he might rely on him as a valuable ally in carrying out the notions of the "divine right." Not that their aims were quite identical—James was chiefly anxious to maintain the absolute authority of the sovereign, and Laud the absolute authority of episcopacy. In 1617 Laud accompanied his majesty to Scotland, with the view of introducing episcopacy into the church government of that country; but the attempt failed. In 1621 he was consecrated bishop of St. Davids. After the accession of Charles I. he was translated from the see of St. Davids to that of Bath and Wells, became high in favor at court, was more than ever hated by the Puritans, and was denounced in parliament. In 1628 he was made bishop of London. After the assassination of Buckingham (q.v.), Laud became virtually the chief minister of Charles, and acted in a manner so utterly opposed to the spirit of the times and to the opinions of the great body of Puritans in England, that one might have foreseen his ruin to be inevitable, in spite of the royal favor. In 1630 he was chosen chancellor of the university of Oxford, the center of high-church loyalty. From this period he was for several years busily but fruitlessly employed in repressing Puritanism. The means adopted were not only unchristian, but even detestable. Cropping the ears, slitting the nose, branding the forehead, fines, imprisonments, are not at any time satisfactory methods of defending a religious system, but in the then temper of the English nation they were in the last degree weak and foolish. In the high-commission and star-chamber courts, the influence of Laud was supreme; but the penalty he paid for this influence was the hatred of the English parliament and of the people generally. In 1633 he was raised to the archbishopric of Canterbury, and in the same year made chancellor of the university of Dublin. The famous ordinance regarding Sunday sports, which was published about this time by royal command, was believed to be drawn up by Laud, and greatly increased the dislike felt towards him by the Puritans. His minute alterations in public worship, his regulations about the proper position of the altar and the fencing of it with decent rails, his forcing Dutch and Walloon congregations to use the English liturgy, and all Englishmen to attend the parish churches where they resided, display a petty intellect and an intolerant spirit; as other of his actions indicate that there lurked in his small obstinate nature no inconsiderable amount of cruelty and malice. Still, it must be confessed that in the long run, Laud's ritualism has triumphed. The church of England was gradually penetrated with his spirit, and the high value which she has come to put on religious ceremonies is partly owing to the pertinacious efforts of the archbishop. This influence, in short, has hindered her from becoming as doctrinal and *Calvinistic* as her articles would logically necessitate. During 1635–37, another effort was made by him to establish episcopacy in Scotland; but the first attempt to read the liturgy in St. Giles's church, Edinburgh, excited a dangerous tumult. Proceedings were finally taken against him, and on Mar. 1, 1640–41, he was, by order of the house of commons, conveyed to the Tower. After being stripped of his honors, and exposed to many indignities and much injustice, he was finally brought to trial before the house of lords, Nov. 13, 1643, on a charge of treason and other crimes. The lords, however, did not find him guilty; but the commons had previously resolved on his death, and passed an ordinance for his execution. To this the upper house gave its assent; and in spite of Laud's producing a royal pardon, he was—undoubtedly in violation of express statute, and by the exercise of a prerogative of parliament as arbitrary as any king had ever exhibited—beheaded, Jan. 10, 1644–45. Laud had a genuine regard for learning—at least ecclesiastical learning—and enriched the university of Oxford, in the course of his life, with 1300 MSS. in different European and oriental languages; but his exclusive sacerdotalism, his inability to understand his fellow-creatures, and his consequent disregard for their rights, forbid us to admire his character, though we pity his fate. His writings are few. Wharton published his *Diary* in 1694; and during 1857–60, Parker, the Oxford publisher, issued *The Works of the Most Reverend Father in God, William Laud, D.D., sometime Lord Archbishop of Canterbury*, containing, among other things, his letters and miscellaneous papers, some of them not before published, and, like his *Diary*, of great value in helping us to form an adequate conception of the man and his time.

LAU'DANUM, or TINCTURE OF OPIUM, is the most generally used of all the preparations of opium. It is obtained by macerating the sliced or powdered drug in spirit, and filtering. It is of a deep brownish-red color, and possesses the peculiar odor and smell of opium. One of the greatest objections to it is, that it is liable to great variations of strength. Dr. Christison remarks: "Laudanum is made by all the colleges with such proportions of the opium and spirit that about thirteen minims and a half, or about twenty-five drops, contain the entire part of one grain of opium. But the London tincture may be sometimes sixteen per cent stronger than the others, as dry opium is directed to be used." This medicine is, moreover, very often adulterated.

Laudanum is a powerful anodyne and soporific, but is more liable to cause headache than the solution of one of the salts of morphia. Its general action and its uses will be described in the article OPIUM. The dose for an adult varies from ten minims to a dram. To children (as is the case with all opiates), it must be given with extreme caution. *One minim*, which is equivalent to the 120th of a grain of morphia, has been known to prove fatal to an infant.

LAUDA SION SALVATO'REM ("Praise the Saviour of Zion"), a rhymed Latin hymn by Thomas Aquinas, in 12 stanzas, sung in Roman Catholic churches on Corpus Christi Sunday. Nine of the 12 stanzas have six lines each, two eight lines each, and one, the last, ten lines.

LAUDER, ROBERT SCOTT, 1803–69; b. near Edinburgh; studied painting under the patronage of David Roberts and sir Walter Scott in Edinburgh and London, after which he spent five years in Italy. From 1838 to 1849 he resided in London, and after that time until his death in Edinburgh. His best works were scenes from Scott's novels. His "Christ Teaching Humility" was purchased by the Scottish association for the encouragement of art and placed in the Scottish national gallery at Edinburgh.

LAUDER, Sir THOMAS DICK, 1784–1848; b. Edinburgh; was first brought into notice by contributions to *Tait's* and *Blackwood's Magazines—Simon Roy, Gardener, of Dumphail*, being ascribed by some to the author of *Waverley*. In his youth he wrote *Lochandhu* and the *Wolf of Badenoch*. He read a paper on *The Parallel Roads of Glenroy* before the royal society of Edinburgh, which was published in vol. ix. of their *Transactions*. It consisted of a description of the geological strata of that district of the Highlands. He published also sketches of Scottish scenery under the titles of *Highland Rambles, with Long Tales to Shorten the Way*, 2 vols.; *Legendary Tales of the Highlands*, 3 vols.; *Tour Round the Coasts of Scotland;* and a *Memorial of the Royal Progress in Scotland* in 1842. He was for several years secretary of the board of Scottish fisheries and of arts and manufactures. He was a baronet, and was succeeded in his title by his son, sir John Dick Lauder.

LAUDER, WILLIAM, d. 1771; b. in Scotland early in the 18th c., and educated at the university of Edinburgh. He was a Latin scholar of some celebrity, but is remembered chiefly for a series of articles in the *Gentleman's Magazine* (1747) (afterward printed in a book with a preface by Dr. Samuel Johnson), in which he pretended to show that Milton, in *Paradise Lost*, had borrowed largely from modern Latin poems by Grotius and others. It afterward appeared that the work was an imposture, the parallel passages quoted to support the charge of plagiarism against Milton being ascertained to be either forgeries or taken from a Latin translation of *Paradise Lost*. Lauder confessed the fraud and went to Barbadoes, where he died.

LAU'DERDALE, a co. in n.w. Alabama, has for its entire southern and western boundary the Tennessee river, and on the n. the state line of Tennessee; about 750 sq. m.; pop. '80, 21,035—20,838 of American birth, 6,809 colored. Cypress creek, rising beyond the border, flows southward, emptying into the Tennessee river, and Shoal creek takes a parallel course. By its southern border, where the Tennessee river is about 1½ m. in width, are the rapids called Muscle shoals, with a descent of 100 ft. in 20 miles. The surface is undulating, particularly in the northern section, with broad tracts of woodland. The soil is suited to the cultivation of cotton and tobacco; other products are those of the dairy, and honey, grain, and sorghum. Limestone and iron ore are found. It is connected with the Memphis and Charleston railroad by the Tuscumbria branch, and has a number of cotton factories in the south. Seat of justice, Florence.

LAUDERDALE, a co. in e. Mississippi, intersected by the Alabama Great Southern, the Vicksburg and Meridian, and the Mobile and Ohio railroads, which form a junction at Meridian; bounded on the e. by the state line of Alabama; about 700 sq. m.; pop '80, 21,501—21,300 of American birth, 11,541 colored. It is drained by the head waters of the Chickasawha river, and has level, tillable lands, principally productive of corn, cotton, honey, rice, and sweet potatoes. Cattle, sheep, and swine are raised; 1,755 farms averaged 122 acres each, in 1880. Its manufacturing industries are few, and include the product of saw mills, sashes, doors, and blinds, and one or two cotton factories. Seat of justice, Meridian.

LAUDERDALE, a co. in w. Tennessee, having the Mississippi river for its w. boundary, separating it from Missouri and Arkansas, drained by Forked Deer creek, emptying into the Mississippi river, and by the navigable Big Hatchie river forming its s. boundary; 400 sq.m.; pop. '80, 14,918—14,843 of American birth, 5,839 colored. Its surface is generally level and well timbered, containing iron ore and limestone. Its soil produces fruit in abundance, wheat, rice, oats, corn, rye, tobacco, cotton, wool, sweet potatoes, and dairy products; cattle, sheep, and swine are raised. Cash value of farms in '80, $1,428,944. It had in '80, 33 manufacturing establishments, employing a capital of $45,450, with a product of $93,293. Seat of justice, Ripley.

LAU'DERDALE, JAMES, about 1780–1814; b. Va., and removed early in this century to w. Tennessee. He bore a prominent part in the Creek war under gens. Coffee and Jackson, and was killed in the first battle of New Orleans, Dec. 23, 1814.

LAUDERDALE, John Maitland, Duke of. See Maitland, *ante.*

LAUDIAN MANUSCRIPT (Codex Laudianus), named after archbishop Laud, who in 1636 presented it to the university of Oxford, is a very valuable MS. of the Acts having in parallel columns and uncial letters the Greek text with a closely literal Latin version, different both from the Vulgate and from Jerome's. The Latin words are always exactly opposite the Greek. The portion from xxvi. 29 to xxvii. 26 has been lost. The vellum is inferior and the ink pale. It was probably written in the w. of Europe and about the 6th century. It is now in the Bodleian library, and is numbered 35. Readings were taken from it by Fell in 1675, and Mill in 1707. In 1715 Hearne published it in full.

LAUDOHN, or LOUDON, Gideon Ernst, Baron von, 1716–1790; b. Totzen, Livonia; a distinguished Austrian gen. of Scottish descent; at an early age entered the Russian service, and fought in several battles against the Turks, retiring after the peace of Belgrade in 1739 with the rank of lieut.; in 1742 enlisted in the Austrian army, where he was rapidly promoted to the rank of capt., maj., and lieut.col. In the seven years' war against Frederick the great he so distinguished himself as to receive in a year the rank of maj.gen., and in three years became commander-in-chief. When peace was proclaimed in 1763 he received the title of baron, and in 1766 the honor of aulic councilor. In 1769 he became commandant-gen. of Moravia, and in 1778 field-marshal of the empire. In the war with the Turks he was victorious at Dubicza, Novi, and Grandisca. In 1789 he was made knight of the order of Maria Theresa.

LAUDONNIÈRE René Goulain de, a French navigator of the 16th century. When the French admiral Coligny had secured a patent from Charles IX. to enable him to colonize the Protestants of France in America, he sent Laudonnière in 1562 to select a location and make a settlement. This was two years after Jean Ribault had built a fort and planted a small French colony at Beaufort in Port Royal bay, a remnant of which had returned to France. Laudonnière built a fort on the St. John's river named fort Caroline, where he established a colony. Difficulties with the Indians ensued; affairs were generally mismanaged; a band of the colonists were permitted to make a voyage of depredation against the Spaniards on the coast of Cuba. With the remnant of the colony he was about setting sail for France when Ribault, who had been appointed to supersede Laudonnière in the government of the colony, appeared Sept.4, 1565, with a fleet of seven vessels. Almost simultaneously a Spanish fleet of five vessels, under Don Pedro Menendez de Aviles, appeared. In answer to the French challenge as to his purpose there, the Spaniard responded that he came with orders from his king to gibbet and behead all the Protestants in those regions. "The Frenchman who is a Catholic," he added, "I will spare. Every heretic shall die!" The French fleet, unprepared for battle, fled. The Spaniards, failing to overtake them, returned to the harbor of St. Augustine. The French fleet seems to have run to cover up the St. Johns under the walls of fort Caroline. Ribault, against the advice Laudonnière, decided to return with his fleet to attack the Spaniards at St. Augustine. He had reached the open sea when a storm arose and his squadron was wrecked near cape Canaveral, but the men, to the number of 500, were saved. Menendez then marched over land to the unprotected fort Caroline. Laudonnière, with but a handful of men, took refuge in the fort. It was quickly taken. The Spaniards executed Menendez's threat with their usual cruelty, murdering nearly the entire colony of 200 men, women, and children. Laudonnière, with a few men, escaped into the swamps near the fort and finally reached the coast. Meantime Ribault, ignorant of the tragedy at fort Caroline, conducted his men through swamps and everglades back to the settlement. The first body of 200 men, on reaching the fort, surrendered to Menendez and were slain. Ribault, with the second division of the force, fell into his hands soon after and they were also massacred; "not as Frenchmen, but as Lutherans," observes the discriminating murderer. Laudonnière, with the few others who had escaped, succeeded in reaching one of the vessels on the coast which was saved from the wreck of the fleet; and, returning to France, was driven on the English coast, where he remained till 1566. He seems to have been a man of little force, and made historical only by the colonial tragedy with which he was connected. In 1586 he published *L'Histoire Notable de la Floride, Contenant les trois Voyages faites en icelle par des Capitaines et des Pilotes Français.*

LAUDS. See Canonical Hours.

LAUENBURG, or Saxe-Lauenburg, a duchy belonging to Prussia, but formerly united to the crown of Denmark. In the earlier half of the 13th c. it fell into the possession of the duke of Saxony, one of whose sons became the founder of the ducal house of Saxe-Lauenburg. After the extinction of this line, it was inherited by the duke of Brunswick-Celle in 1689, and passed into the possession of the Hanoverian kings of Great Britain, was seized along with Hanover by the French in 1803, and afterwards, with some changes of boundary, was made over to Prussia, and by Prussia transferred to Denmark, but with reservation of all rights and privileges. By the treaty of Gastein, 1865, it came into the possession of Prussia. It has an area of 400 sq.m., and (in 1875) 48,808 inhabitants, lies on the right bank of the Elbe, and borders with Hanover, Meck-

lenburg, Holstein, and the territories of Hamburg and Lübeck, and is a well-cultivated and fertile country. It is closely connected in political affairs with Holstein. The capital, Lauenburg, has only about 1100 inhabitants: the two largest towns are Ratzeburg (pop. 4,300) and Mölln (pop. 3,900).

LAU'ENBURG, a t. of Prussia, in the province of Pomerania, 38 m. w.n.w. from Dantzic. Manufactures of woolen and linen cloth, and of white and common leather, are carried on. Pop. '75, 7,192.

LAUGHING-GAS. See NITROGEN.

LAUGHTER—THE LUDICROUS. This familiar and peculiarly human expression has been the occasion of a good deal of discussion and controversy, being connected with a large and important class of effects, named the ludicrous, and also with wit and humor. We shall first advert to the physical part of the phenomenon, and then consider the mental causes or accompaniments of it.

Physically, laughter is a convulsive action of the diaphragm (q.v.). In this state, as remarked by sir Charles Bell, the person "draws a full breath, and throws it out in interrupted, short, and audible cachinnations." This convulsion of the diaphragm is the principal part of the physical manifestations of laughter; but there are several accessories, especially the sharp vocal utterance arising from the violent tension of the larynx, and the expression of the features, this being a more intense form of the smile, the characteristic of pleasing emotions generally. In extreme cases, the eyes are moistened by the effusion from the lachrymal glands.

The causes of laughter are both *physical* and *mental.* Among physical causes, we must rank first hilarity, or animal spirits generally. When there is a great overflow of good spirits, it takes the form of the laugh among other violent manifestations. The rebound of robust natures from constraint or confinement, as when children are released from school, is marked with uproarious glee and excitement. Laughter is sometimes produced by the application of cold, as in the cold bath. Another notable form is the hysterical fit, where the explosiveness of the nervous system is an effect of disease, and followed by exhaustion.

The *mental* causes of laughter are what have given rise to the controversy. To determine the common characteristic of all those things termed "ludicrous," has been found a problem of no common difficulty. Various theories have been propounded, all with some truth, but perhaps none entirely explaining the facts. Aristotle lays it down that "the ridiculous implies something deformed, and consists in those smaller faults which are neither painful nor pernicious, but unbeseeming—thus, a face excites laughter wherein there is deformity and distortion without pain." Here he touches upon several of the important conditions—viz., that there should be some strangeness or deviation from the ordinary appearances of nature, that this deviation should be on the side of degradation or inferiority, and that it should not be of a kind to excite any other strong emotion, as pity. Hobbes has given a theory to the effect that laughter is "a sudden glory, arising from a sudden conception of some eminency in ourselves by comparison with the infirmity of others, or with our own formerly." This evidently suits a certain number of cases, especially the laugh of ridicule, derision, and contempt. It would not be so easy to reconcile it with the humorous and genial laughter of those that are but little given to self-glorification or proud exultation over other men's discomfiture. Partly owing to this deficiency, and partly from the harsh judgment of human nature implied in it, this theory has been very unpopular. It has been contended, in opposition to Hobbes, that there are jests that do not imply the degradation of any living being; and that we often feel contempt for others, and sudden glory in ourselves by the comparison, without being urged to laughter. As to the first of these allegations, Campbell, in the *Philosophy of Rhetoric,* adduces the following instance: "Many," he says, "have laughed at the queerness of the comparison in these lines (from *Hudibras*):

> For rhyme the rudder is of verses,
> With which, like ships, they steer their courses,

who never dreamed that there was any person or party, practice or opinion, derided in them." But in addition to the agreeable surprise caused by the novelty of the comparison, which is the chief ingredient in wit, and may exist without any degradation of the subject, there is here a most apparent degradation of the poetic art, hallowed as it is in men's minds by the most dignified associations as something akin to divine inspiration, and now reduced to a vulgar mechanism of rhyme-making. Hobbes confines his definition too much to actual persons; for the laugh may be raised against classes, parties, systems, opinions, institutions, and even inanimate things supposed to be personified. It would not be easy to produce any unequivocal instance of a laugh raised without degrading some person or interest, while in a vast number of cases this circumstance is the indispensable and admitted condition of the effect.

Dr. Campbell himself, while challenging the theory of Hobbes, substitutes nothing in its place except an enumeration of the most prominent kinds of ludicrous effects. These are, first, the debasement of things great and eminent; secondly, the aggrandizement of little things by the language of splendor; and thirdly, the queerness or singularity of the imagery. Now, as regards the first of these, the debasement of things

eminently great—by far the largest class—the doctrine of Hobbes, if properly guarded, would be found fully applicable. There is a strong satisfaction in pulling anything down from a high pinnacle to plunge it in the mire, which we can interpret only as a mode of the sentiment of power, one of the most energetic and deep-seated passions of the human mind. This sentiment is gratified by every striking effect that we can produce ourselves; and few effects are more striking than to debase or humiliate some person or interest from a proud eminence; and not only so, but (what Hobbes neglected to remark) also by seeing the effect produced by the agency of some other person. A familiar mode of pandering to the sense of power is to put any one to fright; even the child can chuckle over this triumph of its young ability. Campbell's second class of cases might seem at first sight to be the opposite of the first, and thereby to contradict the general theory which that illustrates. But when mean and little things are aggrandized, by elevated phraseology, so as to raise a laugh, it will always be found that the effect is owing, not to the raising of the subject, but to the degrading of the language by connection with such a subject. This is the so-called *mock-heroic*, where the grand and the lofty in speech being employed upon the mean and insignificant, are debased to the level of what they are applied to. Such is the nature of *parody*. So that, in fact, Campbell's second species are merely a variety of the first. The third species, marked by "queerness and singularity of imagery," are really nondescript, but on analysis always yield more or less of the element of implied littleness or meanness in a subject usually held great or dignified.

In short, if we carefully set aside the element of the witty, we shall generally be able to explain the production of laughter upon a uniform principle. Every one would probably allow that nine cases out of every ten of the genuinely ludicrous are cases of the pleasure of degrading something, which furnishes a considerable presumption that the remainder are of the same general character, although perhaps enveloped with circumstances that disguise the fact. The figures of a powerful imagination, the resources of learning, and the polish of rhetorical art, may enter into a ludicrous combination. Such we have in the works of the great comic writers—in the plays of Aristophanes, Molière, and Shakespeare, and in the humor of Cervantes, Addison, Swift, and Sydney Smith—but wherever there is no expressed or implied degradation of some characters, classes, opinions, or institutions, we shall probably not experience the proper delight of the ludicrous.

LAUGIER, Auguste Ernest-Paul, 1812–72; b. Paris; son of Stanislas, the surgeon; educated at the polytechnic school of Paris, and attached to the family of the astronomer Arago as a student of astronomy in the natural observatory of Paris. He was elected member of the academy of sciences in 1843, and was decorated in 1844. He has since been attached to the bureau of longitudes, and one of the examiners at the naval and marine school. He has published numerous astronomical works.

LAUMONTITE, called also Laumonite, and by Werner, effloresceing zeolite, because it crumbles easily after exposure to the air. It is one of the hydrous silicates, having the following average composition, which is from an analysis by Dufrénoy of a specimen from Phipsburg, Me.: silica, 51.98; alumina, 21.12; lime, 11.71; water, 15.5=99.86. It crystallizes in oblique rhomboidal prisms and in lamellar masses. Hardness, 3.5 to 4; sp. gr. 2.29 to 2.36. Vitreous, inclining to pearly upon the faces of cleavage. Color white, passing into yellowish gray, sometimes red; transparent, translucent. becoming opaque, and pulverulent on exposure. Before the blowpipe it fuses into a frothy mass. With borax it fuses into a transparent globule. It is gelatinous when treated with nitric or muriatic acid, but is not affected by sulphuric acid without heat. It is found in cavities in amygdaloid, porphyry, syenite, trap, gneiss, and sometimes in veins in clay slate. It was first found by Laumont in 1785 in lead-mines in Huelgoet, Brittany. Its principal localities are the Faroe islands, Greenland, Bohemia, Switzerland, Hartfield moss in Renfrewshire; amygdaloid rocks in Kilpatrick hills, near Glasgow; trap-rocks of Hebrides and north of Ireland; Peter's point, Nova Scotia, fine specimens associated with apophyllite and other hydrous silicates; Phipsburg, Me.; Charlestown quarries, Mass., in gneiss. It is abundant in the trap copper veins on lake Superior, and on the n. shore of lake Superior, between Pigeon bay and Fond du Lac; at Bergen hill, N. J., in greenstone with datholite and apophyllite; and at Columbia bridge near Philadelphia. The change which it ordinarily undergoes on exposure to the air may be prevented by dipping it in a thin solution of gum arabic which prevents the about 2 per cent loss of water.

LAUNAY, Emmanuel Louis, Henri de. See Antraigues, *ante*.

LAUNCE, *Ammodytes*, a genus of fishes, of the eel tribe, with very elongated body, elongated head, large gill-openings, dorsal fin extending nearly the whole length of the back, anal fin also long, tail fin distinct from them both, and forked. Two species are common on the British coast, often called Sand-eel, a name which, in some books of natural history, is restricted to the larger and less abundant of them (*A. tobianus*), a fish about a foot long, the *hornel* of the firth of Forth. The smaller species (*A. lancea*), about 5 or 6 in. long, is much used as bait by fishermen. Both are, however, very delicate and palatable. They are of a beautiful silvery color. The under jaw projects beyond the upper, and is used in burrowing in the sand, to which these fishes retreat

when the tide retires. They are obtained by digging in the sand, or by a kind of rake, or by nets drawn along the sand, when it is covered by the sea.

LAUNCESTON, a parliamentary and municipal borough of England, formerly the capital of the county of Cornwall, is situated on the Kensey, a tributary of the Tamar, 21 m. n.e. of Bodmin. It is a very old town; its castle was held of the Conqueror by the earls of Moreton. It unites with the borough of Newport in sending a member to the house of commons. The county assize formerly held here is now held at Bodmin. Pop. (1861) of municipal borough, 2,790; '81, 3,217.

LAUN'CESTON, the second town of Tasmania, or Van Diemen's land, is to the n. of the island what Hobart Town, the capital, is to the s.—the chief port of entry and mart of trade. It stands at the junction of the Esk with the Tamar, which, after a course of 32 m., enters Bass's strait (q.v.) at port Dalrymple. It is accessible to ships of considerable burden, and carries on a thriving commerce with the colonies of Victoria and South Australia. Among the principal buildings are a church, a government house, a court-house, a jail, a college, a bank, and a barracks, and schools. Pop. '81, 12,753. Launceston has a well-patronized mechanics' institute, which possesses a library containing 6,000 volumes. There were, in 1879, a grammar-school, 33 private schools, and 3 public schools. The imports consist of manufactured goods, tea, sugar, etc. The chief articles of export are wool, oats, wheat, flour, timber, potatoes, horses, fruits. In the surrounding district of the same name rises Ben Lomond, to the height of 4,500 feet.

LAUNCH, the largest boat belonging to a ship. The launch has nearly superseded the long-boat, formerly the principal of a ship's boats. In modern ships of war, the launch is usually a small steamer, fully equipped, with capabilities for stowing several days' provisions. The launch of a man-of-war is frequently armed with a small piece of artillery in the bow; and when the ship is employed in narrow seas or rivers, it is not unusual for the launch to be dispatched on expeditions far from the ship, and to points which she is unable herself to reach.

LAUNCH is the process of removing a vessel from the land to the water. The keel of a ship is laid upon a series of wooden blocks, placed 6 or 7 ft. apart, and built up 3 or 4 ft. from the ground, the tops of which lie in a line which slopes downwards to the water at an angle of about five-eighths of an inch to the foot. The whole ship, therefore, when it is finished, slopes downwards with this inclination, and rests upon the blocks just mentioned, and upon suitable timber shores. When the vessel is ready for launching, "ways" of planking are laid down parallel to the keel, and at some little distance on each side of it, under the bilges of the ship; they extend into the water a considerable distance below high-water mark. A "cradle" is then built under the ship, of which the bottom is formed of smooth timbers resting upon the ways. Before launching, the under sides of these timbers and the upper sides of the ways are well greased, and the weight of the ship is transferred from the keel-blocks to the cradle and ways. Timbers, called "dog-shores," are placed so as to resist the tendency of the ship to slide down until the right moment. When this arrives, at high-water, the ceremony of naming the ship takes place; the dog-shores are knocked away, and the vessel glides stern foremost into the water. As soon as the water removes the weight of the vessel from the cradle, the latter breaks up into pieces.

The *Great Eastern*, owing to her immense length, was built with her keel parallel to the water; but owing to excessive friction, it took three months' exertion, even with the aid of powerful hydraulic rams, to push the immense mass of 12,000 tons into the river.

LA UNION, a t. in San Salvador, a division of Central America, situated on the w. bank of an inlet called La Union, part of the gulf of Conchagua or Fonseca, on the Pacific coast; pop. 3,000 The waters of the gulf partially separate San Salvador from Honduras. It is in the vicinity of 18 volcanoes, the loftiest of which is Conchagua, 70 m. e.s.e. of the town of San Salvador, and 30 m. w. of the port of Amapala, on the island of Tigre. It is a seaport of considerable importance, with a tonnage of 35,000 annually, an environment of exceptional beauty, but an extremely hot and unhealthy climate.

LAUNITZ, Robert Eberhard, 1806–1870; b. Riga, Russia; studied sculpture under Thorwaldsen in Rome, and emigrated to New York, where he died. Among his works are the battle monument at Frankfort, Ky., the Pulaski monument at Savannah, and the monument to gen. George H. Thomas at Troy, N. Y.

LAURA, a name given to a collection of cells in a desert, differing from a monastery in which the monks all lived together. Each monk in the laura had his own cell, and for five days of the week lived alone, his only food being bread and water. On the other two days the monks all supped in common on broth, and took the sacrament. They were subject to severe rules. A meager diet, silence, and solitude were required. The origin of the name is unknown. The most celebrated lauras mentioned in ecclesiastical history were in Palestine, as the laura of St. Enthymus, 4 or 5 leagues from Jerusalem; the laura of St. Saba, near the brook Kedron; and the laura of the towers near the Jordan.

LAURA. See Petrarca, *ante*.

LAURA'CEÆ, a natural order of exogenous plants, consisting of trees or shrubs which have leaves without stipules, and flowers in panicles or umbels. The perianth is 4 to 6 cleft; the stamens opposite to its segments, and twice as many. The fruit is a one-seeded berry or drupe; the fruit-stalk often enlarging and becoming fleshy.—This order contains about 450 known species, mostly tropical. The laurel (q.v.) is the only European species. An aromatic and fragrant character pervades the order, and amongst its products are cinnamon, cassia, and other aromatic barks, also a number of aromatic fruits somewhat resembling nutmeg. See NUTMEG. The timber of some species, as greenheart, is valuable; some are valuable for their medicinal barks, as greenheart (bebeeri) and sassafras; some for their secretions, of which camphor is the most important. *Oreodaphne opifera,* a South American tree, yields a camphoraceous volatile oil in great quantity, if mere incisions are made in its bark. The fruit of some species is agreeable, as the avocado pear (q.v.).—A few very remarkable species, forming the genus *cassytha,* have been united with this order by many botanists, although others separate them as a distinct order. They are climbing parasites, like dodders, and inhabit the woods of the hottest parts of the globe.

LAU REATE, POET-, is an officer of the household of the sovereigns of Great Britain. The appellation seems to have originated in a custom of the English universities of presenting a laurel wreath to graduates in rhetoric and versification; the new graduate being then styled *poeta laureatus.* The king's laureate was then simply a graduated rhetorician in the service of the king. R. Whittington, in 1512, seems to have been the last man who received a rhetorical degree at Oxford. The earliest mention of a poet-laureate in England occurs in the reign of Edward IV., when John Key received the appointment. In 1630 the first patent of the office seems to have been granted. The salary was fixed at £100 per annum, with a tierce of canary; which latter emolument was, under Southey's tenancy of the office, commuted into an annual payment of £27. It used to be the duty of the laureate to write an ode on the birthday of the sovereign, and sometimes on the occasion of a national victory; but this custom was happily abolished towards the conclusion of the reign of George III. The following poets have held the office of laureate since the year 1670: John Dryden, Nahum Tate, Nicholas Rowe, Laurence Eusden, Colley Cibber, William Whitehead, Thomas Warton, Henry James Pye, Robert Southey, William Wordsworth—the office being at present held by Lord Tennyson.

LAU'REL, *Laurus,* a genus of *lauraceæ* (q.v.), which, as now restricted, contains only a single known species, the NOBLE L., VICTOR'S L., or SWEET BAY (*L. nobilis*), a native of Asia Minor, but now diffused over all the countries around the Mediterranean sea. It is often a mere bush of 15 ft. or less, but sometimes becomes a tree of 30, or even 60 ft. high. It has rather large, lanceolate, leathery, shining leaves, reticulated with veins, and axillary clusters of yellowish-white flowers of no beauty. The fruit is oval, bluish-black, and about half an inch long. Both the leaves and the fruit are bitter, astringent, and agreeably aromatic, and were formerly much used in medicine as a stomachic and stimulant, but are now almost out of use. The leaves, however, are still used in cookery for flavoring. They contain a volatile oil (*oil of sweet bay*), and a bitter, gummy extractive.

By the ancient Greeks, the laurel was called *daphne;* it was sacred to Apollo. Berry-bearing twigs of it were wound round the forehead of victorious heroes and poets; and in later times, the degree of doctor was conferred with this ceremony—whence the term *laureation;* and, according to some, the term *bachelor* (q.v.). And to this day, a laurel crown is the emblem of the honor to which poets, artists, and warriors aspire.

The noble laurel is common in shrubberies in Britain, but not nearly so common as the species of cherry laurel (q.v.), which share with it the name laurel, as do not a few other shrubs botanically very different, but somewhat similar in their evergreen foliage.

LAUREL, a co. in s.e. Kentucky, bounded by rivers on all sides but the e.; its western boundary being the Rock Castle river, and its northern and southern other affluents of the Cumberland; about 400 sq.m.; pop. '80, 9,131—9,121 of American birth. Its surface is undulating. It has fine grazing pastures, and extensive tracts of timber. Coal is found in the neighborhood of London. Its soil is fertile and yields average crops of grain and tobacco. Some attention is paid to the raising of stock, and it has a small trade in wool; other products are honey, flax, and sorghum. Seat of justice, London.

LAUREL HILL, a range in s.w. Pennsylvania, dividing the counties of Fayette and Somerset, farther n. those of Westmoreland and Somerset, and still farther n. separating Indiana and Cambria counties. In the s. the range extends over the border into West Virginia, and the chain is broken near that boundary by the Youghiogheny river and the Pittsburgh and Connellsville branch of the Baltimore and Ohio railroad, which crosses the counties of Somerset and Fayette, taking the same course as the river. It contains valuable deposits of bituminous coal easily mined. The chain is a ridge of the Alleghany mountains, passing through a section of country midway between the Connellsville coke region, and the coal district of Myersdale, where capital has been largely invested. Among the forest trees that adorn the mountain side and provide convenient lumber, are beech, elm, ash, hickory, white pine, oak, sugar maple, and wild cherry.

LAUREL RIDGE, in s.w. Pennsylvania, forming the southern portion of Chestnut Ridge, and, beginning at the Youghiogheny river, trends s.w. to the Cheat river in the s.w. extremity of Fayette co., where it rises 2,000 ft. above the level of the sea; thence into West Virginia through the counties of Monongalia, Marion, and Taylor, to the Monongahela river. It contains inexhaustible beds of bituminous coal, and is covered with evergreen and the usual forest trees, including the sugar maple and wild cherry.

LAUREL-WATER, is obtained by distilling a mixture of chopped and bruised leaves of the cherry-laurel and water, after 24 hours' maceration. It is seldom prescribed medicinally in this country, but may be given in doses of from half a dram to a dram as a sedative narcotic, in neuralgic pains, spasmodic cough, and palpitation of the heart; in short, in all the cases in which hydrocyanic is applicable. Death has occurred, with all the symptoms of hydrocyanic poisoning, from its incautious use as a flavoring ingredient in creams and puddings.

LAURENCE, RICHARD, D.C.L., 1760—1838; b. at Bath; graduated at Corpus Christi college, Oxford, in 1782. He entered the ministry of the church of England and preached the Bampton lectures in 1804, after which he became rector of Mersham, Kent. In 1814 he was appointed regius professor of Hebrew and canon of Christ church, Oxford. In 1822 he became archbishop of Cashel, and died in Dublin. It was largely through his influence that oriental studies, long neglected in England, were restored to their rightful place among scholars. It was also through his instrumentality that several interesting apocryphal works, often quoted by the Fathers, but supposed to be lost, were recovered from the Ethiopic manuscripts. Among these were the *Ascension of the Prophet Isaiah*, and the *Book of Enoch the Prophet.* He published a new version of *Fourth Esdras*, also from the Ethiopic; also *Dissertation on the Logos of St. John; Critical Reflections on the Unitarian Version of the New Testament; On the Existence of the Soul after Death;* and many occasional essays and sermons.

LAURENS, a co. in central Georgia, intersected by the navigable Oconee river, which flowing s. through the county forms its s.e. boundary; about 800 sq.m.; pop. '80, 10,051—10,039 of American birth, 4,352 colored. The Palmetto creek empties into the Oconee river in the central portion. The surface is generally level, and more than half covered with forests of oak, pine, and hickory. The soil has a foundation of limestone and clay, with an upper stratum of sandy loam containing elements of great fertility. Its staple products are wool, sweet potatoes, honey, sugar-cane, and live stock. It had in '80, 1022 farms, 61 of 1000 acres and over. Seat of justice, Dublin.

LAURENS, a co. in n.w. South Carolina, has for its n. and n.e. boundary the Ennoree river emptying into the Broad river in the next county, and for its s. and s.w. the Saluda river, which, rising in the Blue Ridge mountains, and taking a south-easterly direction unites with the Broad river at Columbia; about 650 sq.m.; pop. '80, 29,444—29,365 of American birth, 17,666 colored. The Reedy river, an affluent of the Saluda, is mostly included in its limits. The Laurens branch of the Greenville and Columbia railroad terminates at Laurens Court-House. It has an uneven surface and a productive soil. Total number of farms in 1880 was 2,326. Value of all farm productions, including betterments and additions to stock in '70, $1,469,545. Its staple products are barley, oats, corn, wheat, tobacco, cotton and wool, sweet-potatoes, honey, and sugar-cane. Granite is quarried, and among the industries are woolen factories and flour-mills. Seat of justice, Laurens Court-House.

LAURENS, HENRY, 1724–92; b. Charleston, S. C., descended from a family of Huguenots who fled to America after the revocation of the edict of Nantes. He was educated for a mercantile career in Charleston and London, and established a prosperous business, from which he retired rich, and traveled in Europe in 1771, placing his children in England to be educated. His experience of differences with the crown judges on matters of marine law turned his attention at an early period to the exercise of arbitrary power as practiced by the mother country in her relations with the colonies, and of which he became a bitter opponent. Early in 1774 parliament passed the Boston port bill, which closed that port to all commerce, and transferred its privileges to Marblehead and Salem. Laurens was one of about 40 Americans who petitioned parliament against the passage of this bill, most of the petitioners being South Carolinians. This occurred while he was still abroad, and on the petition proving unsuccessful, he returned to Charleston, and identified himself with the patriot cause. He was president of the council of safety, and president of the continental congress. In 1779 he was sent to Holland, charged with the negotiation of a commercial treaty, but fell into the hands of the British, and being taken to London, was imprisoned in the Tower during 15 months, which completely broke his health. Congress appointed him in 1781 one of the peace commissioners, and on Nov. 30, 1782, he signed the preliminary treaty in Paris, in company with Jay and Franklin. During the latter years of his life he declined all connection with public affairs, on account of his health, and devoted himself to agricultural pursuits. He left an injunction in his will that his remains should be cremated, which was complied with by his heirs. The collections of the South Carolina historical society contain his historical papers, which were collected after his decease.

LAURENS, John, 1753–82; son of Henry, having been liberally educated in England, returned to his home in South Carolina, and in 1777 entered the patriot army, being appointed aide to gen. Washington. In this position many of the duties of a private secretary fell to his lot, and his familiarity with foreign languages enabled him to be of great service in conducting the necessary correspondence constantly occurring with European officers in the service. His military career was distinguished by dauntless bravery, and his conduct at the battles of Brandywine, Germantown, Coosawhatchie, and during the siege of Charleston, was highly commended. Early in 1781 he was sent by Washington on a special mission of appeal to the king of France for aid to the colonies, and succeeded in accomplishing his purpose. At Yorktown it fell to his duty to receive the sword of the commander, Oct. 19, 1781. During the remainder of the war he was with gen. Greene, and having exposed himself during a skirmish on the Combahee river, met with his death, his loss being lamented as among the most serious of the revolution. It is on record that Washington felt keenly the death of one who had been a valuable confidential assistant and a faithful and self-sacrificing friend to him during the many exigencies and dangers of the war. At the battle of Monmouth his intrepidity relieved Washington from imminent peril. He challenged gen. Charles Lee and wounded him in the duel which followed, the cause of his action being a disrespectful reference to Washington on the part of Lee, in the course of his attempt to explain his misconduct at Monmouth. The army correspondence of Laurens was privately printed in 1867 among the publications of the Bradford club (N. Y.). When it is remembered that Laurens was only 29 years of age at his death, it will be recognized that his career was in the highest degree honorable, patriotic, and unselfish.

LAURENTIAN SYSTEM, a series of highly metamorphosed rocks, older than the Cambrian, and apparently the fundamental series of the stratified rocks. They have been so named from their covering the whole country n. of the St. Lawrence, where they were originally described by sir William Logan. They consist of hornblendic and micaceous gneiss, alternating with or passing into mica-schist, the whole being considered to have been originally sedimentary deposits, and to have been thus altered by long-continued metamorphic action. A few large, irregular beds of crystalline limestones, and bed-like masses of magnetic oxide of iron and other minerals, are interstratified with the gneiss. True igneous rocks are frequently intruded among these strata, as veins and masses of granite, syenite, and greenstone. The beds are highly inclined and greatly contorted, so that no approximate estimate can be made of their thickness, which seems to be very great. Murchison and Geikie have lately determined that certain great masses of highly crystalline gneiss, which underlie the Cambrian series in the n. of Scotland, belong to this period. It is probable that some of the highly metamorphosed rocks of the n. of Ireland may be of the same age.

LAURENTIAN SYSTEM (*ante*). It may be more precisely stated that the Laurentian system of rocks is the lower period of the *eozoic* age, or as it is termed by prof. J. D. Dana, the *archæan* (q.v.), that is, the age of the first appearance of organic life. This archæan age is divided into two periods, the Laurentian beneath and the Huronian above, sometimes called *upper* and *lower* Laurentian. The Huronian lies immediately beneath the Cambrian system or age of Sedgwick. The Laurentian rocks proper, or lower Laurentian, are composed chiefly of primitive gneiss, and have been subjected to more change (metamorphism) than any other rocks, unless it be a fact that granite, now called primary, is really derived from stratified rock by igneous action. The Huronian or upper Laurentian rocks are, to a considerable extent, crystalline schists, much less compact than the (lower) Laurentian gneiss, whose strata are also much more convoluted than those of the Huronian. Both together form a series of rocks which in Canada have a thickness of 40,000 ft., passing into gneiss and granite downwards, and upwards into hornblende gneiss, syenites, diorites, and limestones, the latter being metamorphosed into marbles.

The immense beds of iron ore in the Laurentian rocks are considered as evidence of abundant organic life during that age (see Metamorphic Rocks, *ante*), as also are the great beds of graphite (q.v.). In addition to these evidences, there have been found in the Laurentian limestones of Canada, Bohemia, and other countries, large, irregular, cellular masses, which are regarded as the remains of gigantic rhizopods, and the supposed species has been called *eozoön Canadense* (q.v.).

LAURENTIE, Pierre Sébastien. See page 896.

LAURENTIUS, Saint. See Lawrence, Saint, *ante*.

LAURENTUM, a t. in ancient Italy, the capital of Latium, about 16 m. below Ostia. It was a maritime city of importance, and its name appeared in the first treaties between Rome and Carthage, as is recorded in Polybius. After the defeat of the Latin league at lake Regillus, it fell into decay, and was deserted and left in ruins. It was, however, subsequently restored, and a new city formed by the union of Laurentum and Lavinium, which was known as Lauro-Lavinium. The ancient city was renowned for its groves of laurel, and was frequented by the Roman nobles in winter as a place of fashionable suburban resort. Hither the emperor Commodus was ordered by his physician; Scipio and Lælius are said to have gone thither frequently for recreation after the cares of business; and Pliny the younger describes with minuteness his beautiful villa at Laurentum.

Hortensius, the orator, the rival of Cicero, was also one of those who possessed villas in that neighborhood.

LAU'RIA, a t. of Italy, in the province of Potenza, 98 m. s.e. by e. from Naples, and about 5 m. from the shore of the gulf of Policastro. Opposite to it is the imposing mass of Monte Sirino. Lauria is an ancient town, but still of considerable prosperity. Woolen manufactures are carried on. It consists of two parts—upper and lower Lauria. Their united pop. in 1872 was 10,696.

LAURIC ACID, also called Laurostearic, and Pichuric Acid, a fatty acid first described by Marsson in 1842. It occurs as a glyceride, laurostearine, in the fat of the bay tree, and in the solid fat and volatile oil of pichurim beans. It also occurs in connection with myristic acid in *myrica cerifera*, and other plants. It also exists in connection with other fatty acids or their glycerides in spermaceti, and in cocoanut oil. It is separated from the mixtures of fatty acids by saponifying them with caustic alkaline solutions, and decomposing the soaps thus formed by hydrochloric or tartaric acids. Lauric acid is insoluble in water, but is readily soluble in alcohol and ether, and crystallizes from the alcoholic solution in white, silky needles, or translucent scales which melt at about 109.4° Fahr. The laurates of the alkali metals and of barium are soluble in water. The other salts are insoluble, or sparingly so. The calcium salt is decomposed by distillation into carbonate of lime and laurostearone, $Ca,2C_{12}H_{23}O_2=CaO,CO_2+C_{23}H_{46}O$.

LAURISTON, Jacques Alexandre Bernard Law, Marquis de, 1768–1828; b. India; was educated with Napoleon I. at a military school in Paris. He was a descendant of the brother of the celebrated John Law of Lauriston, the author of the "Mississippi scheme." Entering the French army while quite young, he was befriended by Napoleon, who made him his aid-de-camp, and aided him to rise in his profession. He was employed in the conduct of many important missions, and exhibited much skill as a diplomatist. He was also a brave and successful commander, was engaged in every campaign of the French armies in Germany, Spain, and Russia, and decided the victory of Wagram at a most critical moment. The Austrians were holding an advantageous position; the left wing of the French under Massena had been driven back with great fury; the right wing under Davoust was being severely pressed, and hardly maintaining its ground; when Lauriston, at the head of 100 pieces of artillery, came up at full trot and attacked the enemy's center, producing a diversion which resulted in victory. At the conclusion of peace, he received the grand cordon of the legion of honor from Louis XVIII. In 1817 he was created a marquis, and four years later was made a marshal of France.

LAURIUM, a promontory in s.e. Attica, a division of Greece, bordering on the Ægean sea, celebrated for its mines of silver, zinc, and antimony, which in the time of Herodotus yielded a considerable profit to the Athenians who shared it. According to Xenophon, they were worked by shafts and drifting with the use of imported timber; pillars of the ore being left to support the mountain. It is mentioned that a particularly noxious vapor rose from the mines. In Strabo's time they had begun to extract silver from the old scoriæ, which floated upon the surface of the metal when fused, and which has been used in the harbors for various building purposes. The same process of procuring silver is being carried on at the present day, and the scoriæ yield 10 per cent of argentiferous lead. In 1863 a Marseilles company reopened the mines, and in 1871–72 they were a subject of controversy in France and Italy with the Greek government, which was settled in 1873, and they are now worked by a company belonging to their own government. It is a lofty and steep hill crowned by a thick growth of pine trees. Marble is found in large quantities, and the country abounds in lead ore.

LAURUSTI'NUS, *Viburnum Tinus*, see Viburnum; a shrub very frequent in pleasure-grounds in Britain, a native of the s. of Europe and the n. of Africa. It is a beautiful evergreen, with dark, shining, leathery leaves, small whitish flowers in corymbs, and small blackish-blue berries. The flowers appear in winter or very early spring. The berries have drastic purgative properties; they are very acrid, and inflame the mouth violently, yet some kinds of birds eat them with avidity. The laurustinus cannot endure much frost; and in Germany and the northern parts of the United States it is a greenhouse plant.

LAURVIG, a seaport t. of Norway, situated at the head of a small fiord, which branches off from Christiania fiord. The town of Laurvig has of late rapidly increased in population and prosperity. It carries on a considerable trade with foreign countries, and particularly with Britain. Very extensive iron-works—the Fritzo iron-works—are situated near the town. A cannon-foundry gives employment to many operatives. There are also snuff-manufactories and distilleries. The harbor is excellent, and suitable for the largest vessels. Pop. 4,944.

LAUSANNE' (Lat. *Lovsana*), a city of Switzerland, capital of the canton of Vaud, is picturesquely situated on the southern slope of the Jura mountains, close to the northern shore of the lake of Geneva, on which the village of Ouchy forms its harbor. The two principal parts of the city are separated by a valley, across which a fine bridge has been recently thrown. Lausanne has a number of religious, educational, and scientific insti-

tutions. The cathedral, a beautiful Gothic building, begun in the 10th c., and completed in the 13th, is the greatest ornament of the city. Lausanne is much frequented by visitors from all parts of the world. Here Gibbon resided for many years, and the house in which he wrote the greater part of the *Decline and Fall* is still shown. John Kemble, the actor, is buried in a cemetery in the vicinity. Brewing, lithographing, and cotton and wool spinning are the principal branches of trade. The pop. in 1870 was 26,520.

LAUZUN, Antonin Nompar de Caumont, Duc de, 1633–1743; b. France; a notorious adventurer and a favorite for a time of Louis XIV. Born a poor nobleman in Gascony, he possessed all the peculiar Gascon traits of energy, shrewdness, unbounded effrontery, and recklessness. He was courtly in his manners, witty, and attractive to the fair sex. His exploits and adventures were romantic; though many of them, resting on no broader foundation of testimony than his own word, have been judged apocryphal by historians on the ground of the boastful and mendacious character of their alleged hero. Appointed by the king governor of Berri, and mareschal de camp, and promised the grade of grand master of artillery, Lauzun was sufficiently indiscreet to boast of the favors of Louis, a course which speedily placed him in disgrace. He was committed to the Bastile by order of the king, but the latter soon repented his severity, and Lauzun was restored to favor, being even promised the hand in marriage of Mlle. de Montpensier, granddaughter of Henry IV. This marriage was prevented, however, by court intrigues; and to reconcile him to the disappointment the king made Lauzun commander of the French army in Flanders. It has been asserted by some contemporary writers that this marriage was actually though secretly effected. Lauzun was at length so unfortunate as to offend Mme. de Montespan, at the time all-powerful with the king, and, through her influence, he was again cast into prison, and this time to remain for several years. He finally gained his liberty, as is stated, through the intercession of Mlle. de Montpensier; and, repairing to England in 1688, was commissioned by James II. to escort the queen and her infant son to France on the outbreak of the revolution. Lauzun, in 1695, at the age of 62, married Mlle. de Durford, a girl of 16 years, Mlle. de Montpensier having died two years before.

LAUZUN, Armand Louis de Gontaut, Duc de, 1747–93; b. Paris; commanded a naval expedition against England in 1779, and took part in the American war, 1780–83. He succeeded to the title of duc de Biron, was a deputy to the states-general, and a confidant and secret agent of the duke of Orleans. He was general-in-chief of the army of the Rhine in 1792, and of the army of La Rochelle in 1793. After taking Saumur and defeating the Vendeans at Parthenay, he resigned; but being accused before the committee of public safety of having been too lenient in his treatment of the Vendeans, he was deposed, imprisoned, tried before the revolutionary tribunal for conspiracy, condemned Dec. 31, 1793, and executed the same day. His ability was undoubted, but he was dissolute and unscrupulous.

LA'VA, a name sometimes applied generally to volcanic rocks (q.v.), but more strictly confined to those rocks which have been poured out as a stream of molten matter from a volcanic opening, either on dry land or in shallow water. The surface of the stream, which speedily cools and hardens, is generally quite porous and vesicular, from the escape of the confined gases; but as rock is always a bad conductor of heat, the interior often remains long in a liquid condition, permitting the continued flow of the stream sometimes to a very great distance from the orifice from which it has been discharged, notwithstanding its indurated covering. The end of the stream is a slowly-moving mass of loose porous blocks, rolling and tumbling over each other with a loud rattling noise, being pushed forward in fits and starts by the viscid lava, when it bursts the hardened crust and rushes on. The structure of the interior of a solid lava-stream shows a compact and homogeneous rock, assuming a more and more crystalline structure as the cooling has been the work of a longer or shorter period of time. Caverns are sometimes formed in lava-streams by the escape of the molten mass below, leaving the cooled crust standing like the roof of a tunnel.

LAVA BEDS. See Modocs.

LAVACA, a co. in s.e. Texas, watered by numerous little streams, and the Lavaca and Navidad rivers emptying into Lavaca bay and thence into the gulf of Mexico; about 970 sq. m.; pop. '80, 13,642—12,038 of American birth, 3,426 colored. It is divided into fertile prairies and small tracts of timber land. The soil is adapted to the production of cotton, rice, corn, tobacco, wool, sweet potatoes, and sorghum. Good building timber of ash and oak is found in the groves. The product of its orchards is among the finest in that region, and beef is exported, canned and in bulk. Number of farms in 1880, 1,925; over 1,000 acres, 1. Cash value of farms in 1880, $2,025,445. The Galveston, Harrisburg and San Antonio railroad crosses the extreme northern section. Seat of justice, Hallettsville.

LAVAL, an ancient and picturesque t. of France, capital of the department of Mayenne, is situated on the river Mayenne, 42 m. e. of Rennes. Its chief building is an old château, now a prison, and formerly the residence of the dukes of La Tremouille. For 500 years this town has been celebrated for its linen manufactures, which are exported from, as well as sold throughout, France. Cottons, calicoes, serge, soap, and leather

are also manufactured, and there is a considerable trade in grain, wool, timber, and iron. In the vicinity of Laval the Vendeans under Larochejaquelin gained a brilliant victory over the republicans, who lost 12,000 men and 19 cannon in the engagement. Pop. '76, 25 110.

LAVAL, a co. of the province of Quebec, Canada; pop. 9,462. It consists exclusively of the isle Jésus, 23 m. long and 6 m. broad, lying between the Ottawa river and the Rivière des Prairies.

LA VALETTA. See VALETTA, LA.

LA VALLIÈRE, FRANÇOISE LOUISE DE LABAUME LEBLANC DE, a celebrated mistress of Louis XIV. of France, was b. at Tours, in 1644, of an ancient and noble family. At an early age she lost her father, and was brought to court by her mother, who had married a second time. She was not a great beauty, and had a slight lameness; but her amiability and winning manners, and, above all, the extraordinary sweetness and tenderness expressed in her looks, rendered her very attractive. It is seldom that one can do more than praise the face of a king's mistress, but this singular creature was characterized by an extreme, we might almost say a morbid, delicacy and modesty. She really loved Louis, and bore him four children, of whom two died in infancy; but although she and they received wealth and titles of honor, she remained always extremely sensible of the disgrace of their birth. When Madame de Montespan became the royal favorite she retired into a Carmelite nunnery in Paris, where she took the veil in 1674. She died June 6, 1710, after having spent more than 30 years in penances and religious austerities. She wrote a work entitled *Réflexions sur la Miséricorde de Dieu* (Paris, 1680), of which a copy, dated 1688, with corrections by Bossuet, was discovered in the Louvre in 1852. Both have been edited by M. Romaine Cornut (Paris, 1854). A collection of her letters was published in 1767.

LAVAL-MONTMORENCY, FRANÇOIS XAVIER DE, 1622–1708; was made a priest at the age of 23 years, and 6 years later was named missionary-bishop of Cochin-China. He declined the office, however, and in 1653 was appointed arch-deacon of Evreux. In 1659 he was sent to Canada, bearing the titles of vicar-apostolic of New France and bishop of Petræa *in partibus*, that he might successfully enforce his authority in that country, where the archbishop of Rouen was arrogating supremacy to himself. He established the seminary of Quebec, under letters-patent of Louis XIV., and being actually the civil as well as ecclesiastical ruler, directed social conduct in the interest of propriety and morals, particularly enforcing the most stringent enactments in favor of temperance and against the sale of intoxicating liquors to Indians, which was at this period a crying evil. In 1674 he became titular bishop of Quebec, an office which he held until 1688, when he resigned it and devoted himself thereafter to the conduct of the affairs of the seminary. His religious enthusiasm, his force of character, and his unblemished life made him universally respected, and his name is remembered in Quebec in the Laval university, formerly the seminary to which he devoted a great part of his life and property, and which in 1854 was raised by the queen of England to its present grade.

LAVA ORNAMENTS, the name given to trinkets, charms, and other small articles manufactured from volcanic slag, or lava, which is melted up and applied to such designs and purposes as are favorable to the use of the material.

LAVATER, JOHANN KASPAR, b. Nov. 15, 1741, at Zürich, was the son of a physician. As a boy he was by no means distinguished for his talents; but in 1762, whilst yet a youth, he gave a signal proof of his energy and courage in coming forward, along with Henry Fuseli, to accuse the *landvoigt* Grebel of oppression and injustice, under which others had groaned without daring to complain. He early gained a high reputation by a volume of poems, entitled *Schweizerlieder* (Bern, 1767). His next publication was *Aussichten in die Ewigkeit* (3 vols. Zür. 1768–73), of which several editions were soon called for. The tone of this work is that of high religious enthusiasm, mingled with asceticism. He filled in succession several ecclesiastical offices in his native city, and finally, in 1786, became minister of the church of St. Peter there. His powers of observation were very keen, and his discrimination of character most delicate, and believing that he could discover much of men's characters from their countenances, he concluded that physiognomy might come to be reckoned among the sciences. He labored, therefore, to form a system of physiognomy, hoping thus to promote greatly the welfare of mankind, and at last he published the work to which he owes the chief part of his celebrity, *Physiognomische Fragmente zur Beförderung der Menschenkenntniss und Menschenliebe* (4 vols. Leip. and Winterth. 1775–78). This work, which has often been reprinted and translated, is written in an inflated style. It gave rise to much discussion, and occasioned not a little display of wit and humor. Lavater himself appears latterly to have been convinced that his system was fanciful. But he was of a highly imaginative temperament, and the religious orthodoxy which he firmly retained was incongruously combined with novel speculations and with superstitious notions. He was the chosen spiritual adviser of many persons both in Switzerland and Germany, with whom he maintained an unwearied correspondence. On his tours in Germany he received extraordinary marks of popular esteem and honor. When the French revolution began,

Lavater hailed it with joy; but after the murder of the king he regarded it with religious abhorrence. In performing kind offices to some wounded persons on the street at the capture of Zürich by Massena, Sept. 26, 1799, he received a wound, of the effects of which he died, after long suffering, Jan. 2, 1801.

LAVAUR, a t. of France, in the department of Tarn, is situated on the left bank of the Agout, 20 m. n.e. of Toulouse. Its manufactures are cotton-yarn, leather, and silk. Pop. '76, 4,937.

LAVEAU, MARIE. See page 896.

LAVELEYE, ÉMILE LOUIS VICTOR DE, b. Bruges, 1822; a Belgian writer, politician, and author of historical studies connected with political economy. His studies were completed in Paris. In 1848 he was a frequent contributor to French reviews, and a defender of the revolutionary liberalism of that year. In 1858 he became one of the editors of the *Revue de Deux-Mondes*, enriching it with articles of remarkable ability. He was subsequently made professor of political economy in the university of Liege; a member of the international jury at Paris in 1867; and a corresponding member of the academy of moral and political sciences of Paris. The list of his published works indicates a wide range of studies. The work, *Essai sur les Formes de Gouvernement dans les Sociétés Modernes,* 1872, is one of the most notable.

LAV'ENDER, *Lavandula,* a genus of plants of the natural order *labiatæ,* having the stamens and style included within the tube of the corolla, the corolla two-lipped, the upper lip bifid, the lower trifid.—The COMMON LAVENDER, or NARROW-LEAVED LAVENDER (*L. vera* or *L. angustifolia*), grows wild on stony mountains and hills in the s. of Europe, and in more northern regions is very generally cultivated in gardens. It has a delightful aromatic fragrance, and an aromatic bitter taste, and contains a great quantity of a volatile oil, *oil of lavender.* The whole plant possesses stimulant properties, and is used in medicine, but particularly the spikes of the flowers, as a tonic, stomachic, nervous stimulant, etc. Lavender flowers are often put into wardrobes to keep away moths. They are much used in perfumery. *Oil of lavender* is procured by distillation of lavender flowers with water. It requires 70 lbs. of flowers to yield 1 lb. of oil. It is rather lighter than water, pale yellow, very fluid, and very fragrant. *Spirit of lavender* is made by distilling lavender flowers with rectified spirit; *lavender water,* one of the most popular of all perfumes, by dissolving oil of lavender with smaller quantities of other volatile oils in rectified spirit. Lavender is extensively cultivated for its flowers in some places near London, and particularly at Mitcham in Surrey, where more than 200 acres are occupied by it, the light and sandy soil being especially suitable to it.—BROAD-LEAVED LAVENDER (*L. latifolia* or *L. spica*) is also a native of the s. of Europe, but is more tender than common lavender. It is also less fragrant, and the oil which it yields is called *oil of spike,* and sometimes *foreign oil of lavender.* This oil is used by painters on porcelain, and in the preparation of varnishes.

LAVER, a name given to a number of kinds of sea-weed, which are used as food, especially *porphyra vulgaris* and *P. laciniata,* of the sub-order *confervaceæ,* and nearly allied to the genus *ulva.* These plants grow on rocks and stones in the sea, and are not unfrequent on the British shores. They consist of a very thin flat purple frond, which is not gelatinous. The frond of *P. vulgaris* is wavy and undivided, that of *P. laciniata* (sometimes called SLOKE) is deeply cleft, and has the segments lobed and cut at the edges. Laver is stewed and brought to table as a luxury; also pickled and eaten with pepper, vinegar, and oil, or with lemon juice. It is regarded as useful in scrofulous affections and glandular tumors, a property which it probably owes to the iodine which it contains.—The name of GREEN LAVER is given to *ulva latissima,* a common sea-weed of the British shores, the frond of which is green, membraneous, broad, flat, wavy, and sometimes inflated. It is bitterish, but is often used in the same way as the true laver, and possesses similar properties.

LAVIEILLE, EUGÉNE. See page 896.

LA VILLEMARQUÉ, THÉODORE-CLAUDE-HENRI HERSART, Vicomte de, a Breton antiquary and Celtic scholar, was b. at Quimperlé, in Bretagne, on July 6, 1815. Representing an old family of his native province, his attention was early turned to its antiquities and its peculiar language and literature. His first important work was a collection of popular Breton songs and melodies, published in 1839, with a French translation and notes, under the title of *Barzaz-Breiz.* Three years afterwards appeared his *Popular Tales of Bretagne,* to which was prefixed a dissertation on the story of the Round Table. His next work was a collection of the poems of the Celtic bards of the 6th c., with a French translation, and explanatory and critical notes (1850). This publication made the labors of La Villemarqué widely known. He was appointed a correspondent of the academy of Berlin, and a member of the French institute (academy of inscriptions and belles-lettres). La Villemarqué has since published a work entitled the Celtic Legends (*La Legende Celtique*) of Ireland, Cambria, and Bretagne, which contain such of the original texts—Irish, Welsh, or Breton—as are rare or unpublished. La Villemarqué is the author or editor of several other works connected with the Celtic literature and languages, among which are a *Breton Grammar;* a *Breton and French Dictionary; Bretagne Ancient and Modern;* and *The Great Mystery of Jesus;* with a dissertation on the dramatic literature of the Celts.

LAVINIUM, an ancient city of Latium, 17 m. s. of Rome, founded by Æneas and named in honor of his wife Lavinia. It was between Laurentum and Ardea. In the time of Trajan it united with Laurentum under the name of Lauro-Lavinium, and for a few years was important as the capital of Latium and as the religious center of the Latin cities in opposition to the claims of Alba, but held its political importance for no long period. It is now called *Pratica.*

LAVISH PERSONS. See INTERDICTION.

LAVOISIER, ANTOINE LAURENT, the founder of the antiphlogistic or modern chemistry, was b. in Paris, Aug., 1743, and devoted himself to scientific, and particularly to chemical studies, to obtain the means of more fully prosecuting which he accepted in 1769 the office of farmer-general. In 1768 he was made an academician; in 1776, discovered a way of greatly improving the quality of gunpowder; and made other beneficial discoveries in economics, and in the application of chemistry to agriculture. Availing himself of the discoveries of Black, Priestley, and Cavendish, and making many experiments and discoveries himself, he was led to connect the recently discovered gas, oxygen, with the phenomena of combustion and of acidity; and in 1783 he proved that water can be formed by burning oxygen and hydrogen together, and that it can be decomposed into the same elements. He and his associates invented a new chemical nomenclature, adapted to the advanced state of the science, which was very ganerally adopted. See CHEMISTRY and CHEMICAL NOMENCLATURE. Lavoisier's services to science could not save him from the popular rage against farmers of the taxes during the reign of terror, and he died by the guillotine, 1794. His principal work is his *Traité Elémentaire de Chimie;* but of course his chemical works are now interesting merely as marking the history of the science.

LAVOISIER, ANTOINE LAURENT (*ante*), the son of a rich merchant, had the advantages of a very liberal early training. He studied astronomy with La Caille, chemistry with Rouelle, and was a pupil of the celebrated botanist Jussieu. At the age of 23 he won the prize of the academy of sciences by his *Mémoire sur la Meillure Manière d'eclairer les Rues d'une Grande Ville.* This, and his *Mémoire sur les Conches des Montagnes* procured his admission to the academy of sciences. He was elected in 1787 to the provincial assembly of Orleans. He was appointed one of the trustees of the bank of discount in 1788, and made an admirable report upon the condition of that institution in 1789, as assistant deputy of the constituent assembly. In 1790, as a member of the commission on weights and measures, he was active in the preparation of the new decimal system. In 1791, as one of the commissioners of the treasury, he published his essay *De la Rechesse Nationale de la France,* a paper which made him take rank as one of the first political economists of the age. But chemistry was the absorbing subject of his life, and he pursued it for nearty a quarter of a century, living only to the age of 51. He wrote many essays and memoirs, but his greatest work is his *Traité Elémentaire de Chimie* (2 vols. 8vo, 1789). It is to Lavoisier that chemistry owes its first well-founded scientific steps. His adoption of the method of weighing chemical constituents led to the overthrow of the phlogiston theory, which was one of the great stumbling-blocks in the way of advancement. The increase in weight of a metal when oxidized had, indeed, been known by Stahl, but it had been attributed to other causes than that of combination with oxygen. It is a remarkable fact that the discoverer of oxygen, Priestley, was the last adherent of the phlogiston theory, while his discovered element was one of the most potent arguments against this theory in the hands of Lavoisier. The discovery by Cavendish that hydrogen when burned forms water furnished Lavoisier with an explanation of the solution of metals in acids. He saw at once that water was in this operation decomposed, the hydrogen being liberated, but the oxygen, the other element, uniting with the element to form an oxide. One of Lavoisier's most important works was, in conjunction with Guyton de Morveau, Berthollet, and Fourcroy, to devise a system of chemical nomenclature, a work which was commenced by Guyton de Morveau.

LAW, in theology, a term variously used. In the Bible it often includes the whole of revelation, doctrinal as well as preceptive; but it is often also used, in a more restricted and somewhat conventional sense, to signify the books of Moses, the whole Jewish Scriptures being comprehended under the twofold designation of "the law and the prophets." A very natural and common use of the term law is to denote the preceptive part of revelation, in contradistinction to the doctrinal, the one being designated as *the law,* and the other as *the gospel.* When employed in Scripture with exclusive reference to the preceptive part of revelation, the term law sometimes signifies the Jewish code of precepts as to rites and ceremonies, called by theologians the CEREMONIAL LAW, and which is regarded as having been abrogated when the Jewish dispensation gave place to the Christian. The ceremonial law is also regarded as having in its rites and ceremonies—"a shadow of good things to come"—symbolized the great doctrines which form the system of Christianity.—The MORAL LAW is that preceptive revelation of the divine will which is of perpetual and universal obligation. It is commonly regarded by theologians as summed up in the *Ten Commandments;* and, according to our Savior's own statement, as still more briefly and comprehensively summed up in the two commandments of loving God with all our heart, and soul, and strength, and mind, and loving our neighbors as ourselves. Although the Ten Commandments were given to the

Jews at Mount Sinai, it is not therefore held that they were intended for the Jews alone, or were then first promulgated; the moral law being regarded as really the *law of nature*, written on the heart of man at his creation, although to fallen man a clear and express revelation of it has become necessary. One of the chief contested points in connection with this subject is that of the Sabbath (q.v.). Another relates to the law of nature, and the value which ought to be practically assigned to the decisions of the judgment and conscience of man, apart from express revelation.—The obligation of the moral law on the consciences of Christians is admitted by all except Antinomians (q.v.).

LAW has been variously defined. Blackstone says it means the rules of human action or conduct. This definition is too wide, for it is confined only to such rules as courts, supported by proper authority, will enforce. The law of nature consists of those laws which are common to all mankind, and are supposed to be, as nearly as can be conjectured, independent of the accidents of time and place. The civil or municipal law of a nation is what is commonly understood by the term law, when applied to a particular country. The "civil law" is also sometimes used *par excellence* to denote the old Roman law as embodied in the *Institutes* of Justinian, the code, and other parts of what is commonly called the *Corpus Juris Civilis*. Many of the leading doctrines of that law have been adopted by modern nations. England is the civilized country which has adopted the least from that code of law, while Scotland follows the continental nations in adopting the Roman or civil law to a large extent, and on many subjects in adopting it entirely. The law of nations is subdivided into public international law (q.v.) and private international law, or the *comitas gentium*. Law is often used in England as contradistinguished from equity, but this is chiefly due to the accidental circumstance that there is a subdivision of courts into courts of law and equity, according to the nature of the remedy given. See JURISPRUDENCE, INTERNATIONAL LAW, CHANCERY. Law is also often in popular parlance distinguished from justice, the latter being supposed to be perfect in its nature, or as near the standard of perfection as can be supposed; whereas there are numberless cases of injury, hardship, and oppression which, owing to human infirmity, no system of human laws can adequately redress; and this is often adduced as confirmation of the doctrine of future rewards and punishments. Law is also sometimes subdivided into criminal law, constitutional law, etc., according to the particular subject-matter.

*LAW (*ante*). This is a word in extensive use in regard to divine and human law, as well as to that which has received the name of natural law. There are differences of opinion as to what should always be considered divine law, and volumes have been written embracing subjects related to it, as well as those which relate to human laws, in connection with the question of the validity, and therefore the reality, of human laws unless founded upon divine law. The origin of the word law is Anglo-Saxon, *lag*, from *lecgan*, to lay, and signifies to found, to lay down, to establish, or to ordain. Therefore there are philosophers who maintain that laws, strictly considered, are those only which have been laid down, or that they are commands relating to rules of action, and that they must proceed from authority. They maintain that it is not sufficient that there should be uniformity of phenomena for such uniformity to be called by the name of law; consequently the ordinary phenomena of nature are regarded by such thinkers as *invariable phenomena so far as experience goes*, but which may cease at any moment. This is, however, a rather exceptional view, most philosophers, even of the religious school, regarding the invariableness of natural phenomena as warranting the conclusion that such invariableness has been established or ordained by the Creator, and although it be admitted that these phenomena may cease at any moment, they would only cease by the abrogation of the natural law, which may be held as only unwritten divine law. As an illustration of a natural law, there may be instanced the invariableness of the phenomena of chemical combination, the constituents of all bodies entering into their formation in definite proportions or multiples of such proportions. When sulphuric acid, water, and carbonate of lime are placed together, there is produced a definite quantity of hydrated sulphate of lime, and the liberation of a certain quantity of carbonic acid gas, depending upon the proportion of the original materials. The hydrated sulphate of lime will also have definite quantities of sulphuric acid, calcium, and water, and the carbonic acid gas will have invariable relative quantities of carbon and oxygen. The invariableness with which bodies move through space under definite circumstances has resulted in the recognition of certain laws called laws of motion, and which have as their basis the law of gravitation. Connected with these are the laws of hydrostatics and of cohesion. A great number of facts have been discovered relating to the phenomena of magnetic and electrical attraction, which, from their invariableness, have been called magnetic and electrical laws. Some philosophers maintain that these laws are inherent properties of matter, others that they are dependent upon external power, but both schools regard them as laws, and as having equal importance in whichever light they are viewed. Advancing from the laws which belong to what is commonly called inanimate matter to those which belong to living matter, it is held by some philosophers that those which regulate chemical phenomena also govern vital phenomena, and that vitality is the result of the action of the general laws of analysis and synthesis

of all matter, and that all organized beings are the result of natural or physical law, which physical law is inherent in matter itself. Another class of philosophers do not go so far as to deny the agency of divine power in the formation of the organic world, but nevertheless maintain that whatever divine power has been manifested was in the beginning, in the establishment of certain properties pertaining to matter which are termed laws; that creation was accomplished in this way and no other; and that the Creator has not worked by any process of continuous design or action. Again there are other philosophers who maintain that because there are evidences of design in creation it would be unreasonable to believe that God has left the development of living beings to be accomplished by the meeting of unalterable law with accidentally distributed matter. They therefore regard the phenomena of chemical affinity and of vitality as taking place in accordance with separate laws, and that when ascending from ordinary vital action to that of sensation still different laws are involved; and in again ascending from the mere phenomena of sensation to that of thought, still other and higher laws, and such as are beyond the sphere of exact scientific determination, or perhaps of investigation, are involved. See *Supp.*, page 896.

LAW, CANON. See CANON LAW, *ante.*

LAW, CIVIL, or ROMAN. The codification and collection of this law by Justinian became the basis of the system of private law still administered on the continent of Europe, in Scotland, in Mexico and all the Spanish-American republics, and in Louisiana. The researches of Savigny have shown that the civil law was never entirely lost in Europe as has been supposed. The Germanic tribes which, in the 5th c., invaded and conquered Spain, Italy, and Gaul, continued to be governed by the body of customary Germanic law which they brought with them, but allowed the conquered peoples to make profession (*professio*) as to which law they would be governed by, Germanic or Roman. In the 12th c. the university of Bologna became the great law-school of Europe, and the studies of the commentators there increased the influence of the civil law, not only in Italy, but throughout Europe. In southern France the proportion of Germanic immigrants was small, and the civil law prevailed. In northern France the Germanic element was stronger, and in each province its own traditional law or custom was administered, as "the custom of Normandy," "the custom of Anjou," etc. Hence northern France was called the country of customary law, *pays de coutume*, and southern France the country of the written law, *pays de droit écrit.* In the countries which composed the Holy Roman empire, the German emperors, who claimed to be the successors of the Cæsars, encouraged the growth of the civil law. In England, though the civil law failed to supplant that body of customary law known as the common law, it had a great influence. The ecclesiastical, a branch of the civil law, had the exclusive control of matters of marriage and divorce. Equity, which has afforded relief for so many technicalities or deficiencies of the old common law, is the product of the civil law, and the chancellor for a long period was an ecclesiastic, bred to the civil and canon law. The common law was largely real property law, and originated in a time when property consisted almost exclusively of land. With the growth of commerce and trade the law of personal property assumed a corresponding importance, and was forced to borrow much, particularly in the departments of commercial and maritime law, from the civil law. The expression *jus civile*, of which civil law is a translation, was used by the Romans in a more restricted sense of the rights peculiar to the citizen by the law of the city or state (*civitas*), as distinguished from the law relating to rights which are recognized by the law and usage of all nations (*jus gentium*). The Roman public law has little but historical interest; the private law demands consideration.

A man's condition and relation with reference to his legal rights constitute his *status* at the civil law. This status consists of personal freedom (*libertas*), citizenship (*civitas*), and control of family (*familia*). Hence men are divided into (1) freemen, *liberi ingenue;* and slaves, *servi.* The power of the master over the slave, which in the earlier ages had been absolute, was afterwards greatly restricted. A slave could receive his liberty by will, by enrollment among freemen in the census, or by a fictitious suit. (2) Citizens, *cives;* and *peregrini*, aliens; the disabilities of the latter, chiefly in the matters of trade and marriage, belong to the domain of public law. (3) Persons of full control, *sui juris*, and persons under the control of others, *alieni juris.* A remarkable feature of the civil law was the power of the father, *patria potestas*, over the person and property of his children and their descendants, except the descendants of a married daughter, who would belong to another family. This power of the head of the family, *paterfamilias*, was such that even in the latest times a man, whatever his age or services, could own no property during the life of his father, save what he might have acquired in war. His father had the use of his son's property during his own life. On the contrary, a boy of the age of 14 years who had no father living was *sui juris*, and could marry, contract, etc. An important division of the family should be mentioned here, that into *cognates* and *agnates.* Cognates are persons united by the same blood or, as in cases of adoption, reputed so to be. Agnates are such relations by blood as can trace descent from a common ancestor to whose paternal power they would be subject. Marriages were not required to be celebrated by any form, and extreme latitude of divorce was allowed, but this was checked by the ecclesiastical courts. Gifts between

husband and wife were revocable until the death of the donor, but were good when so limited or upon divorce. It was customary for the wife or her relations to make a gift, *dos*, to the husband upon marriage, and such gift had to be restored upon the death of the wife or her divorce where the husband was the guilty party. And similar settlements could be made by the husband for the maintenance of children by the marriage. An infant under 7 years, whose father was dead, must be put under guardianship, *tutela*, and was conclusively presumed to be incapable of contracting. From the age of 7 to 14 his acts must be ratified by his guardian, but after 14 he was deemed liable for his acts and on his contracts. The age of majority in such cases was afterwards fixed at 25, and the law would interfere to avoid contracts made by the minor where they were manifestly to his disadvantage.

As to rights in things, *jura in res*, the Romans divided things according to their origin into corporeal things, *res corporales;* and incorporeal things, *res incorporales*, such as a right of use, of inheritance, etc. Again, with regard to their sacred or secular use, things were divided into things of pious use, *res divini juris*, and things of human use, *res humani juris*. Things for pious use include *res sacræ;* things dedicated to the gods, as a temple, *res religiosæ;* things appropriated to the lower gods, as a tomb. Things of human use include private things, *res privatæ*, and public things, *res publica*. In regard to their nature things are divided into movable and immovable, *res mobiles* and *res immobiles*. Ownership of things, *dominium*, may be created by occupation, or taking possession of what has not or never had an owner, as treasure-trove; by specification, *specificatio*, where a new article is made from an old; by mixture of one article with another in such a way that they cannot be restored to their former condition, etc. Ownership may also be secured by undisputed adverse use of property in good faith. Under Justinian, such use had to continue for 3 years in the case of movables, and 10 years in the case of immovables, to be a bar to the claim of the original owner. Connected with the ownership of property are sometimes certain rights, *jura in re*, or easements, which give one of two contiguous estates certain privileges in regard to the other, as a right of way, a right of drawing water, etc. But such rights run with the estate, and can impose upon the owner of the servient estate no liability to do any act. There may be also a personal servitude by which one person has the beneficial use of certain property for a term of years or for life.

In the law of obligations, all obligations are said to arise from contract, *ex contractu*, or from wrong, *ex delicto*. Of obligations from contract are verbal contracts or stipulations, written contracts; *mutuum*, a loan to be returned with interest; *commodatum*, a loan for use; *depositum*, where the article is not to be used by the bailee. Grouped together as contracts by agreement are the following: (1) Buying and selling, *emptio, venditio*, where the seller agrees to put the buyer in possession of certain property, and the buyer agrees to pay a certain sum therefor; (2) hiring and letting, *locatio, conductio*, where the letter agrees to give the hirer the use of certain property and the hirer agrees to pay a certain sum therefor; (3) agreement to hold property, in common for certain purposes, *societas;* this may be an unlimited partnership, *societas totorum bonorum;* or limited to a single business, *societas alicujus negotiationis;* (4) *mandatum*, an agreement by one party to execute a commission for another party without consideration; a consideration may be given in some other way, but does not appear from the form of contract. This contract was frequently used by parties unable or unwilling to prosecute a suit at law, who would give a mandate to some other person to act as procurator and prosecute the suit for them. Obligations *ex delicto* arise where persons guilty of crime are also civilly liable for damages. Thus a person guilty of larceny, *furtum*, must restore the stolen property or its value and pay a penalty of twice its value, or of four times its value if he were caught in the act. Robbery with violence, *rapina*, was civilly punished with a fine of four times the property, but this included the value of the property taken. Injury to property, *damnum injuriâ datum*, entitled its owner to receive from the wrong-doer the highest price the property would have brought 30 days before the injury, or 12 months before in the case of a slave. Inheritance was based by Justinian on cognation, and the heirs took in the following order: (1) Lineal descendants, sons and daughters equally and the children of deceased children by representation; (2) lineal ascendants, with representation of children of deceased brother or sister; (3) children of the half blood with representation; (4) blood relations, nearer preferred to more remote, but those of same degree sharing equally. An heir by the will was bound to pay debts and legacies, but the legacies fell if the heir refused to accept the inheritance. Finally, after various restrictions on the amount of legacies, the heir was allowed by law one-fourth of the net value of the estate of the decedent, so that the legatees could receive but three-fourths, and in case of a falling off, their shares were proportionately reduced. Wills required 5 to 7 witnesses, though they could be made verbally according to certain ceremonies. To make provision for persons incapable of taking a legacy at law, reliance was placed upon the good faith of the heir, and later a special magistrate was appointed to take cognizance of trusts of this description. A slave could not take save by consent of his master; but a slave made heir by his master was adjudged free, though the will contained no directions for his manumission. A testator could not disinherit a child without making distinct reference to him in the will, and a disinherited child who could show that he had committed no offense against his father

could come in for one-fourth of what his inheritance would be if his father had died intestate.

In regard to jurisdiction and procedure little can here be said. In the time of the Christian emperors the municipal and local magistrates had jurisdiction in small matters up to a certain amount; and there was a class of petty magistrates appointed by the emperor, and called *judices pedanei*, whose functions are not clear. There was a special system of courts at Rome, Constantinople, and Alexandria. Appeal lay to the president of the province, to the delegates or vicar of the prefect, to the prefect, and in the last resort to the emperor himself. The army and the clergy were subject to the military and ecclesiastical courts. The plaintiff lodged a complaint against the defendant with the clerk of the proper magistrate, who informed the defendant. The term civil law is sometimes used as the opposite of criminal law. See CODE, JUSTINIANUS, PANDECTS, *ante*.

LAW, COMMERCIAL. See MERCANTILE LAW, *ante*.

LAW, CRIMINAL, that department of jurisprudence which treats of violations of public law. Crimes or punishable offenses against the public are divided into treasons, felonies, and misdemeanors—any offense inferior in degree to a felony being a misdemeanor. Offenses are further distinguished as such in themselves, *mala in se*, i.e., offenses regarded by the general moral sentiment of the community as notoriously immoral and injurious to the public: and as offenses by statute, *mala prohibita*, i.e., acts which are made offenses by enactment, but which in the absence of statutory prohibition would not be wrong or immoral. The criminal law regards certain persons, whose reason or will is deficient or subjected to constraint by others, as incapable of committing criminal acts. Lunacy or idiocy will be a sufficient excuse, but the accused is presumed to be of sound mind till the contrary is shown. An infant, from birth up to the age of seven, is conclusively presumed incapable of crime; from seven to fourteen there is still a presumption in his favor, though not conclusive, but rebuttable; after the age of fourteen he is presumed to be capable, and the burden of proof lies upon him to show that he is not. Drunkenness, though it may sometimes have a bearing on the question of intent, is no excuse for criminal acts committed during intoxication or as its immediate result; but it is otherwise where continued habits of drunkenness are the more or less proximate cause of insanity. A married woman, acting by the command and under the coercion of her husband, will not be responsible; but such coercion must be shown and will not be presumed from the mere presence of the husband. Duress, actual physical constraint, or extreme bodily fear, caused by acts or threats of violence, will sometimes excuse an otherwise criminal act. In such a case the degree of violence must be such as would exercise a constraint upon a reasonable and prudent man. Acts which are the result of mistake or inevitable necessity, and to which consequently intent is wanting, will be excused, but ignorance or mistake as to the law will not excuse.

Rights of the accused.—By the constitution of the United States the accused has a right to be informed of the nature and cause of the accusation against him and to be confronted with the witnesses against him. The prisoner cannot be brought to trial till a grand jury has found a true bill against him; he is then entitled to a trial by an impartial jury of his peers, whose finding upon matters of fact is conclusive. The criminal law presumes the accused to be innocent till his guilt is established, and in passing upon his guilt or innocence the jury cannot bring in a verdict of guilty upon such evidence as would justify a verdict for or against a party in a civil suit. In the latter a jury renders a verdict for the party in whose favor there is a preponderance of evidence; in a criminal cause a verdict of guilty is not justifiable unless the minds of the jurymen are satisfied beyond a reasonable doubt of the guilt of the accused. The accused cannot be compelled to criminate himself, nor can his general character and habits be examined at the trial to show the probability of his guilt. No person can be punished for an act which has been made an offense by a law subsequent to the commission of the act, nor can any person be twice put in jeopardy of life or limb for the same offense. The old rule of the criminal law prohibiting the accused from testifying in his own behalf has been abolished in many states of the union, and the change on the whole has worked well. The criminal law distinguishes criminals according to the degree of their participation as principals and accessories. A principal is the person who immediately commits the unlawful act; a principal in the second degree is a person who did not immediately commit the act, but who was present at its commission, aiding and abetting it. A principal in the second degree need not be actually, but only constructively present. It is sufficient that by arrangement with the principal he is in a position where he can help in the commission of the act. An accessory before the fact is one who procures another to commit a felony without being himself present at its commission. There can be no accessories to treason on account of its heinousness, to manslaughter on account of its suddenness, or to misdemeanors. An accessory before the fact is equally guilty with the principal of the act committed by the principal at his instigation; but if the principal, being procured by the accessory to commit a certain crime, commit another and different crime not a natural consequence of the former, the accessory to the first act will not be held accessory to the second. Thus, if one procure another to commit burglary, and the principal commit the totally different crime of arson, the first person

will not be liable as an accessory to the arson. An accessory after the fact is one who gives aid and comfort to a felon after the felony, knowing him to have committed it. But a wife is not such accessory for receiving and aiding her husband guilty of felony. As an accessory is not guilty unless his principal be guilty, he cannot be tried unless his principal have been convicted; but, even if his principal have been convicted, the accessory may still dispute his principal's guilt at his own trial.

The various offenses of which the criminal law takes cognizance may be classified as follows: 1. Offenses against the sovereign or state: treason, misprision of treason. 2. Offenses against the public or the persons and property of individuals: conspiracy. 3. Offenses against the persons of individuals: abduction, assault and battery, attempts to commit homicide, false imprisonment, homicide, kidnaping, mayhem, rape, robbery. 4. Offenses against the property of individuals: arson, burglary, embezzlement, false pretenses, larceny, malicious mischief. 5. Offenses against public property. 6. Offenses against public justice: barratry, bribery, champerty, compounding of felony, contempt of court, destruction of public records, escape, extortion, jail-breach, maintenance, oppression, perjury, resistance to officers, suppression of evidence. 7. Offenses against the public peace: breach of the peace, challenging to a duel, libel, riot, rout, unlawful assembly. 8. Offenses against public policy: counterfeiting, false currency, forgery, gambling, lotteries, nuisance, violation of suffrage laws, violation of game laws. 9. Offenses against public morality: adultery, bestiality, bigamy, blasphemy, cruelty to animals, drunkenness, fornication, incest, keeping house of ill-fame, obscenity, profanity, sabbath-breaking, seduction, sodomy. See the articles on these offenses, and further, CRIME; CAPITAL PUNISHMENT; PROSECUTION; *ante.*

LAW, ROMAN OR CIVIL. See LAW.

LAW, EDMUND, D.D., 1703–87; b. near Cartmel, Lancashire; graduated at St. John's college, Cambridge, in 1723, and was at once appointed to a fellowship. In the same year he was appointed rector of Graystock in Cumberland, in 1743 archdeacon of Carlisle, and in 1754 master of Peterhouse college, Cambridge. Subsequestly he became librarian of the university, professor of casuistry, and archdeacon of Lincoln. In 1767 he was chosen prebendary of Durham, and in 1768 became bishop of Carlisle. He was a learned and liberal prelate, and one of the acutist metaphysicians of his time. Among his works were a translation from the Latin, with extensive notes, of archbishop King's *Essay on the Origin of Evil;* an *Enquiry into the Ideas of Space and Time; Considerations on the Theory of Religion;* and *Reflections on the Life and Character of Christ.* He also wrote a biography of John Locke, which was appended to an edition of the works of that great philosopher. One of his sons was the first lord Ellenborough, and two others were bishops of the national church.

LAW, EDWARD, Lord ELLENBOROUGH. See ELLENBOROUGH, EARL OF, *ante.*

LAW, FEUDAL. See FEUDAL SYSTEM, *ante.*

LAW, FOREIGN. See FOREIGN COURTS, *ante.*

LAW, JOHN, comptroller-general of the finances of France, and famous for his credit operations during the minority of Louis XV., was born at Edinburgh, April 21, 1671. His father was a goldsmith and banker, and proprietor of the estate of Lauriston, near Edinburgh. Law early showed a most remarkable talent for arithmetic, algebra, and kindred sciences. After the death of his father he removed to London, where he was admitted into the first circles of fashion, but was soon compelled to flee, in consequence of a duel in which he killed his adversary. He went to Amsterdam, and spent his time in studying the credit operations of the bank. About the year 1700 he returned to Edinburgh, a zealous advocate of a paper currency; but his proposals to the Scottish parliament on this subject met with an unfavorable reception. He now visited different parts of the continent, where he accumulated a large fortune by gambling, but sought in vain to win the favor of governments to his banking schemes. At last he settled in Paris, and in company with his brother William set up, in 1716, a private bank, which was soon successful and prosperous to such an extraordinary degree, that the duke of Orleans, the regent, adopted, in 1718, Law's plan of a national bank, and issued prodigious quantities of bank-notes, which enjoyed perfect credit, whilst the ordinary national bonds remained, as they had long been, at a price far below their nominal value. In 1719 Law originated his Mississippi scheme (q.v.), and the following year was made a councilor of state and comptroller-general of finances; but on the failure of his scheme, and the insolvency of the national bank, he resigned the latter office, and thought it prudent to quit France. He proceeded first to Brussels, but finally settled in Venice, where he managed to eke out a wretched living by gambling, and died there in May, 1729. A complete edition of his works was published at Paris in 1790, and another in 1843.

LAW, MUNICIPAL, is the law or system of law by which a particular country is governed. The municipal law of the continental nations is based upon the civil law; that of England and the United States is made up of common law and statute law. The common law is composed of immemorial usages and customs which have not been sanctioned by any legislative acts. Such customs are either general, i.e., adopted throughout the whole country, or particular, i.e., restricted and peculiar to one district.

Instances of general customs are: "Inheritance never ascends," "The burden of proof is on the plaintiff," "Buildings pass by a grant of the land," etc. The common law is in theory an unwritten law, though the decisions of the courts in which that law is declared may appear in written or printed reports. The report of a particular case is not regarded as the law, but as a written statement, applicable to the facts of that case, of a principle of law which is in theory never written. Statute law, the other component of municipal law, is that law which is established by act of legislature. See STATUTE. In the United States, except Louisiana, the common law, and generally speaking the English statute law up to the time of the separation of the colonies from England, are the foundation of municipal law, and are so declared in many state constitutions. As each state has its own courts, with power to give their own independent interpretation to the law, and its own body of statute law enlarging or restraining the operation of the common law, there is no proper United States municipal law. The systems of municipal law in the several states do not, however, greatly differ, except in details. Municipal law as the law of a particular state is opposed to international law, and the municipal law of one country is foreign law in the courts of any other country. The divisions of municipal law are named according to the subjects of which they treat; thus, criminal law, military law, etc. See FOREIGN LAW, LAW CRIMINAL, etc.

LAW, RICHARD, LL.D., 1733–1806; b. Milford, Conn.; son of governor Jonathan; graduated at Yale in 1751; studied law and settled in New London. He was a delegate to the continental congress in 1777–78 and in 1781–84. For more than 20 years he was mayor of New London, also successively a justice and chief-justice of the state supreme court, and judge of the district court of the United States by the appointment of Washington. He assisted Roger Sherman in revising the laws of Connecticut. Died at New London.

LAW, WILLIAM, an influential religious writer of last century, was b. at Kingscliffe, Northamptonshire, in 1686, and educated at Emmanuel college, Cambridge, where he took his degree of M.A. in 1712. He was for some time tutor to Edward Gibbon, father of the historian, who speaks of his piety and talents with unusual warmth. About 1740 two of his friends, Miss Hester Gibbon, sister of his pupil, and Mrs. Hutcheson, widow of a London barrister, having resolved to retire from the world, and devote themselves to works of charity and a religious life, chose Law for their almoner and instructor. The ladies settled at Kingscliffe, and here Law died, April 9, 1761. Law's writings are deeply tinged with what is commonly called mysticism. His principal work is his *Serious Call to a Devout and Holy Life* (1729), a treatise that first awakened the religious sensibilities of Dr. Johnson, who speaks of it in high terms, and from which the brothers Wesley also derived much advantage. Next to the *Serious Call*, his most important works are his answer to Mandeville's *Fable of the Bees* (published 1724; republished, with an introduction by the Rev. F. D. Maurice, 1844), his letters to the bishop of Bangor, *The Way to Knowledge*, and *The Spirit of Love*. His collected works were published (Lond., 9 vols. 1762).

LAW'BURROWS, LETTERS OF, in Scotch law, a writ or document in the name of the sovereign, commanding a person to give security against offering violence against another. The person applying for or issuing the letters must swear to the truth of some cause of alarm, such as actual personal violence or threats of violence. Sometimes a wife may apply for lawburrows against a husband. The person against whom the letters are directed must find caution to keep the peace within a certain number of days specified, and this he does by executing a bond of caution. If he, notwithstanding, use violence, an action of contravention of lawburrows may be raised against him before justices of the peace, and he is fined in a sum equal to the actual damage resulting, which is paid to the party injured. An action lies against a person who maliciously takes out letters of lawburrows against another. Lawburrows corresponds to what are called articles of the peace (q.v.) in England or Ireland.

LAWES, HENRY, about 1600–62; b. at Salisbury, England; a pupil of John Cooper, and in 1625 was connected with the royal chapel of Charles I., after which he gained celebrity as a composer of music for masques and songs. It was under his personal direction that Milton's *Masque of Comus* was set to music and produced at Ludlow castle in 1634. Milton, who was probably his pupil in music, refers to him in highly eulogistic terms in several of his poems. He popularized the songs of Waller, Herrick, and Phillips, who showed high appreciation of his labors. He composed the anthem for the coronation of Charles II., and in 1653 published *Ayres and Dialogues, for One, Two, and Three Voices*. Died in London, and was buried in Westminster abbey. An elder brother, WILLIAM LAWES, was also attached as a musician to the royal chapel, and was associated with him in some of his musical undertakings. This brother, who was killed at the siege of Chester, composed the music for Sandys's version of the Psalms in 1648.

LAW-MERCHANT, a name often used in law to denote the customs which have grown up among merchants in reference to mercantile documents and business, such as bills of exchange, bills of lading, etc. These customs become incorporated with, and form part of, the common law, and are binding as such.

LAW-MERCHANT (*ante*), a system of law consisting largely of the usages of trade, and applied by courts to the contracts and dealings of persons engaged in mercantile business of any kind. Blackstone classifies it as one of the "customs" of England, and so a part of the common law; but it is not properly a custom, as it is not restricted to a single community, and is not a part of the municipal law of a single country, but regulates commercial contracts in all civilized countries. The body of mercantile usages which compose this branch of law, having no dependence upon locality, does not need to be established by witnesses, but judges are bound to take official notice of it. The principal branches of the law-merchant are the law of shipping, the law of marine insurance, the law of sales, and the law of bills and notes. The feudal law, which grew up in a time when property consisted chiefly of land upon whose alienation great restraints were laid, was found inadequate for the needs of the mercantile classes who were coming into prominence. The courts, when commercial contracts were brought before them, adopted from merchants the rules which regulated their business dealings and made them rules of law. Many of these rules were in direct contradiction to the common law. Magna Charta contained a special provision guaranteeing to merchants, among other things, the right "to buy and sell according to their ancient customs," and many later statutes were enacted for their special protection. As the custom of merchants began to encroach upon the common law, there was a determined effort on the part of lawyers to resist it. It was attempted to make the custom of merchants a particular custom, peculiar to a single community, and not a part of the law of the land. It was finally decided, in the reign of James I., to be part of the law of the realm. An attempt was then made to restrict the application of the law-merchant to persons who were actually merchants, but the courts, after considerable variance, held that it applied to the same contracts between parties not merchants.

LAWN, from the old English *lawnd*, signifying an open space between woods. The word is now used to designate grass kept closely cut or fed so as to form a plush-like carpet, and generally applied to the well-kept grass which forms the ground surface for decorative gardening. F. J. Scott, in his work on *Home Grounds*, defines a lawn as "a close-fitting green robe thrown over smoothed surfaces of the earth, through which every undulation is revealed, and over which the sunlight will rest as upon velvet, and shadows of objects be clearly outlined as upon a floor."

American writers formerly supposed the perfection of English lawns unattainable in the United States. This is a mistake. No finer lawns can be found than in the suburban homes and parks of our cities. It was principally lack of attention to them, and not fault of climate, that formerly made the comparison unfavorable to the United States. Yet the longer droughts to which this country is subject give the British islands a short advantage in summer, and their milder winters leave their lawns greener and less covered by snows. The great heat of our summers, however, which writers have alluded to as hurtful to grass, is hurtful only when moisture fails. We have never seen more velvety turf in England than in this country on a sandy loam in times of intense and prolonged heat and drought, but where daily water by hose at night supplied the required moisture. The three essentials for a velvety lawn are: First, a rich soil in which neither clay nor gravel and sand are largely predominant. A pure rich clay dries and bakes too quickly, and an excess of moisture upon it prepares it to dry and crack the more quickly afterwards. An open gravelly soil dries quickly, and does not give sufficient food for the grass roots at the surface. Compact sandy soils, which contain clay, but not enough to make them sticky after a rain, are best of all. An abundance of vegetable and animal manure in any of these soils is as essential to the permanent beauty of a lawn as to the growth of a corn crop. The second requirement to perfect a lawn is, incessant grazing or cutting. The admirable lawn-cutters now in universal use have taken the place of the manual labor that made England's lawns so beautiful, and served to prove that labor, and not climate, was what our lawns lacked. Lawns should be cut in May and June about once a week, with longer intermission in the dryest and hottest part of the summer. A few years since it was supposed that the short tips of grass which the lawn cutters remove could be left to drop into it, to enrich the surface by its decay, as it at once falls out of sight and is covered by the fresh growth. But experience has shown that frequent cutting soon leaves such a thick film of these decaying leaves at the roots, that it molds, smothers the grass, and finally kills it. Dead patches are frequently seen in lawns once beautiful that are caused by slow deposits of this kind. In the fall, just before a top-dressing of manure, or in the spring, a lawn should be raked clean to the roots with an iron garden rake to get this film of dead grass-leaves all out. It is a very different kind of raking from that required to remove the surface grass, and requires muscle and close attention. The third requirement is constant moisture. Where city water-works can be used, or higher springs which supply a force that make lawn fountains and hose sprinklings practicable, there need be no failure in lawns, if the foregoing conditions are found. Parks must of course have generous provisions for artificial waterings.

The sorts of grasses to be used where an extensive surface is to be seeded depend much upon the soil and latitude. It is safe to say that the best pasture grasses of the neighborhood are always the best lawn grasses. Small lawns should be sodded from

these pastures, or at least have the walks bordered by sod. But the pastures are made up of many species of grass; one forming the bulk of the feed in the spring, another in the summer, and another in the fall. The Kentucky blue grass, however, is the mainstay, though in the heat of summer a shorter variety of the same species, and white and yellow clovers make a considerable part of the feed. After Sept. rains, white clover covers the same ground and is the main grass of autumn pastures. The seeds of many of the low-growing and creeping grasses cannot be gotten at seed stores, so that the choice is confined to blue grass, white clover, and red-top. The proportion of these by quart or bushel measure may be four parts of blue-grass to one each of the others. The Rhode Island bent grass may be used in the place of red-top. It is a mistake to sow oats or any other crop with grass for the purpose of shading it. The young grass no more needs shade of oats than young oats the shade of corn. It will thrive better without, and as weeds are quick to make a business of shading the young grass they should be cut as soon as they show, and continuously. Young grass is often smothered by a rank growth of weeds that are permitted to cover the ground first. Sowing times for grass are, in autumn, Sept.; and in the spring, the moment when the ground is settled enough to surface it. Autumn top-dressings of well-rotted manure are invaluable, and should be spread late in the fall, and cleanly raked off as soon as the ground is settled in the spring.

LAW OF NATIONS. See INTERNATIONAL LAW.

***LAWN TENNIS**, a modified form of the old game of tennis (q.v.), has recently become a popular pastime alike for ladies and gentlemen. The ground on which it is played is a strip of turf (sometimes asphalt), 78 ft. in length by 30 in width at the extremities. Across the center extends a net 5 ft. high, stretched from poles 24 ft. asunder. Lines are drawn marking the boundaries, and dividing each of the portions of ground separated by the net lengthwise into a right court and a left court. Any number of players may join; but the best game is played by two or four persons. The player who begins stands just on the back boundary of the right court on his side, throws up the ball, and on its rebound strikes it with the racket so that it shall fall over the net into the nearer part of the right court diagonally opposite him. His opponent there is bound to strike back the ball either before it reaches the ground or after the first rebound. It is then returned again by the first player, who continues to play till he fails to return the ball, sends it without the boundaries, or commits some of the other "faults" recognized by the rules; when his opponent takes his turn.
See *Supp.*, page 896.

LAWRANCE, JOHN, 1750–1810; b. in Cornwall, Eng.; emigrated to New York in 1767; admitted to the bar in 1772. He was aid-de-camp to Washington in 1777, and judge-advocate at the trial of maj. André. In 1785 he was a member of the continental congress, and of the new congress, 1789–93. From 1794 to 1796 he was district judge of the United States; 1796–1800 a member of the U. S. senate, and for a part of the time its presiding officer. He was a zealous defender of Washington and Hamilton. Died in New York.

LAWRENCE, a co. in n. Alabama, watered by affluents of the Tennessee river, which forms its northern boundary, and Town creek, running northward and entering the former river near the Muscle Shoals rapids; navigation on the Tennessee being obstructed at the point where it separates this from the counties of Lauderdale and Limestone; about 850 sq.m.; pop. '80, 21,391—21,310 of American birth, 8,809 colored. The Memphis and Charleston railroad crosses the northern section. Its surface is hilly, particularly in the s., where it rises into high table-lands. A large proportion of the soil is under cultivation, and produces corn, oats, wheat, tobacco, honey, and sorghum. Sheep and swine are raised, and the dairy yield is considerable. Number of farms in '80, 2,502, averaging 142 acres. Cash value of farms in '80, $2,025,445. It had in '80, 32 manufacturing establishments, with a capital of $39,220, and an annual product of $82,876. Seat of justice, Moulton.

LAWRENCE, a co. in n.e. Arkansas, intersected by the St. Louis, Iron Mountain and Southern railroad, and drained by Black river; two of whose branches uniting in the n. and form a part of its northern boundary; about 600 sq.m.; pop. '80, 8,782—8,654 of American birth, 467 colored. The Cache river flowing s. and emptying into the White river forms its eastern boundary. It has a level surface partially diversified by ridges of table land and large forests. It has a rich alluvial soil, and deposits of copper, zinc, and lead. It has manufactories of woolen goods and zinc works. Its vegetable products are grain, tobacco, cotton, sorghum, and hops. Seat of justice, Smithville.

LAWRENCE: co., Dakota. See page 896.

LAWRENCE, a co. in s.e. Illinois, on the Wabash river, which separates it from Indiana; traversed by the Embarras river, and by the Ohio and Mississippi and the Cairo and Vincennes railroads; about 350 sq. m.; pop. 13,663. The soil is fertile. Chief productions, cattle, corn, wheat, wool, grass, and pork. Assessed value real and personal property, $2,090,544. Capital, Lawrenceville.

LAWRENCE, a co. in s. Indiana, watered by the East Fork of the White river, flowing from w. to e. through its southern portion, with Salt creek flowing from the n. and emptying into it, and Indian creek forming part of its western boundary. It is intersected by the Ohio and Mississippi railroad and the Louisville, New Albany, and

Chicago railroad, forming a junction at Mitchell in its southern portion, and its county-seat is the terminus of the Bedford, Springville, Owensburg, and Bloomfield railroad; 450 sq.m.; pop. '80, 18,543—18,216 of American birth. Its surface is hilly, having an abundant growth of building timber, and a stratum of limestone beneath a fertile soil. Coal is found and beds of kaolin, formed from the decomposition of feldspar, and used in making porcelain. Number of farms in 1880, 1,764, with 14 of 1,000 acres and over. Cash value of farms in 1880, $4,184,430. Its agricultural products include buckwheat, wool, tobacco, sweet potatoes, oats, corn, rye, wheat, maple sugar, sorghum, and live stock. In 1870 it produced 205 galls. of wine and 3,812 lbs. of honey. At Fort Ritner is a tunnel 1786 ft. in length for the accommodation of the Ohio and Mississippi railway trains. Trade is active in its towns, and its manufactories consist of woolen mills, planing mills, cigar and tobacco factories, carriage shops, and steam saw-mills. Seat of justice, Bedford.

LAWRENCE, a co. in e. Kentucky, separated from West Virginia by the Big Sandy river, an affluent of the Ohio, which is navigable by small steamboats up to this point, and forms its eastern boundary; 350 sq.m.; pop. '80, 13,262—13,227 of American birth, 241 colored. The West Fork of the Big Sandy divides the eastern portion, and unites with the Tug Fork on its eastern border to form the larger river. The surface is uneven, two-thirds covered with forests. In the cultivated portion of the valleys the soil is found to be suited to the production of buckwheat, barley, oats, corn, tobacco, rye, wheat, and sweet potatoes, and for the raising of live stock; other products are honey, sorghum, maple sugar, and flax. Vast deposits of coal and iron have been found. Number of farms in 1880, 1,713, averaging about 153 acres. Cash value in 1880, $1,304,798. Seat of justice, Louisa.

LAWRENCE, a co. in s. Mississippi, intersected centrally by the Pearl river and watered by its branches; 580 sq.m.; pop. '80, 9,422—9,410 of American birth. Its surface is diversified by forest and plain. In the forests are extensive tracts of building timber of oak and pine; among ornamental trees the magnolia, beech, and cypress grow in great luxuriance. The soil where cultivated is found to be productive of tobacco, rice, oats, corn, cotton, sweet potatoes, and sugar-cane. Seat of justice, Monticello.

LAWRENCE, a co. in s.w. Missouri; intersected by the St. Louis and San Francisco railroad, and drained by the head-waters of Sac and Spring rivers; 576 sq.m.; pop. '80, 17,585; surface undulating and covered to a large extent with forests; chief products, corn, wheat, oats, and hay; assessed value real and personal estate, $2,659,254. Capital, Mt. Vernon.

LAWRENCE, a co. in s. Ohio, has the Ohio river for its boundaries on the s., and e., and w., separating it from Kentucky, and is watered by Symmes' creek and numerous rivulets; about 420 sq. m.; pop. '80, 39,068—36,882 of American birth. It has a surface of alternate sandstone hills, fertile plain and forest, and its soil is unusually fertile. It has one short railroad 3 m. in length running from Center Furnace, in the central portion to Ironton on the Ohio river, and a branch road to Whitwell of 2 m. in length. Number of farms in 1880, 1,947, with 1 of 1,000 acres and over. Cash value of farms in 1880, $4,281,782. In its hills are inexhaustible beds of iron ore, bituminous coal, and clay. It has three coal mines, employing 165 men (150 underground), with a capital of $210,610; annual product, $112,880. It has twelve mines of iron ore, employing 626 men (60 underground), with a capital of $744,050; annual product, $286,502. Its leading industries are the manufacture of tin, copper, and sheet-iron ware, pig-iron, engines and boilers, bricks, and charcoal. It has flour, planing and saw mills, cooper shops, and rolling mills. Its agricultural products include the raising of grain, tobacco, sweet potatoes, flax, maple sugar, sorghum, and live stock. In 1870 it produced 143 galls. of wine and 5,242 lbs. of honey. Seat of justice, Ironton.

LAWRENCE, a co. in w. Pennsylvania, watered by small creeks and the rivers Mahoning and Shenango, uniting in the central portion to form the Beaver, which empties into the Ohio; about 400 sq.m.; pop. '80, 33,311—30,207 of American birth, 235 colored. The Newcastle branch of the Erie and Pittsburg railroad, the Youngstown branch of the Pittsburg, Fort Wayne, and Chicago railroad, and the Newcastle and Franklin railroad, form a junction at Newcastle in the central portion. The Beaver and Erie canal traverses the n.w. section, following the course of the Shenango river. It had in 1870, 11 coal mines, employing 245 hands (197 underground), with a capital of $289,050; annual product, $281,511. It had 3 stone quarries, employing 66 hands, with a capital of $22,000; annual product, $58,000. Its leading industries are the manufacture of bricks, brooms, carriages, window glass, iron, machinery, saddlery and harness, and woolen goods; it has also the product of flour, planing, and saw mills. Product of manufactures in 1870, $3,439,700. Its surface is uneven, with a small proportion of woodland. Its rich tillable lands produce vast quantities of grain, flax, and tobacco; they also furnish an immense dairy product. A large amount of honey, maple sugar, syrup and sorghum is exported. Number of farms in 1880, 2,636; averaging 78 acres. Cash value of farms in 1880, $12,040,772. Seat of justice, Newcastle.

LAWRENCE, a co. of middle Tennessee, bounded s. by Alabama, and drained by Shoal creek and other streams; 630 sq. m.; pop. '80, 10,383; surface undulating or level.

and extensively covered with forests; soil partly fertile; chief productions, corn, cotton, and pork. Iron ore and limestone abound. Assessed value real and personal estate, $955,527; capital, Lawrenceburg.

LAWRENCE, a city of Kansas, in Douglas co., on the Kansas river, founded in 1854; pop. '80, 8,510. It is well built, and lighted with gas, and sustains 25 churches, and a graded public school system, with high school department. The state university, situated here, is an important public institution. The following lines of railroad connect Lawrence with the surrounding country: Kansas Midland; St. Louis, Lawrence, and Denver; Lawrence and South-western; Leavenworth, Lawrence, and Galveston; and Kansas Pacific. At the time of the formation of the republican party, and during the exciting anti-slavery period which preceded the outbreak of the Rebellion, Lawrence was the center of the anti-slavery element in Kansas. In 1863 the city was almost entirely destroyed by a raiding party under Quantrell.

LAWRENCE, a city of Massachusetts, U.S., on both sides of the Merrimack river, 26 m. from its mouth, and the same distance n. of Boston. It is a handsome manufacturing city, with a park, and fountains supplied from a reservoir 140 ft. high; has 21 churches, 6 newspapers, and cotton and woolen manufactories employing a capital of $8,000,000. These are supplied with water-power by a granite dam across the Merrimack river, 1629 ft. long, and at the deepest part 40½ ft. high, which has created a basin 9 m. long. The water is distributed to the mills by a canal 1 m. long, 100 ft. wide, and 12 deep. The city has been entirely built within a few years, and was incorporated in 1853. Pop. in 1870, 28,932.

LAWRENCE (*ante*), a city of Massachusetts and one of the capitals of Essex co., situated on both sides of the Merrimack river, 26 m. n.w. from Boston, and on the Boston and Maine, the Lowell and Lawrence, and the Manchester (N. H.) and Lawrence railroads; pop. '60, 17,639; '70, 28,921; '80, 39,178. The Merrimack at this point has a descent of 26 ft. within the distance of half a mile, affording a water-power of almost unlimited extent—a circumstance which in 1845 led to the selection of the place as a site for a manufacturing city. Abbott Lawrence, Nathan Appleton, and other wealthy manufacturers of Boston enlisted in the enterprise, and the Essex company was incorporated for the purpose of carrying it into effect. A dam of solid granite, 900 ft. long and 40 ft. high, was thrown across the rapids, and a canal 90 ft. wide and more than a mile in length constructed for the utilization of the water. These works were completed Oct. 14, 1847, at a cost of $250,000, and in the following February the first wheel was set in motion by water from the canal. A second canal on the side of the river opposite the first has been built, and an immense capital has been invested in the erection of cotton and woolen mills, and in other branches of manufactures. The place was named in honor of the Lawrence family, several of whose members were among the founders. It was incorporated as a town in 1847, and as a city in 1853, since which time its development has been almost unexampled in New England. The amount invested in the cotton manufacture can hardly be less than $7,000,000, while that employed in the manufacture of woolens is probably not much less. The city has more than 20 churches, 4 national and 3 savings banks, 2 daily and 5 weekly newspapers, 45 public schools, a public library of 14,000 volumes, a beautiful park of 17 acres, a court-house, city hall, high school (costing $80,000), music hall, and other public buildings. The assessed value of property in 1882 was $26,269,500. All the mills and most of the stores and private houses are lighted with gas.

LAWRENCE, Saint, the deacon, one of the most celebrated martyrs of the early church, the subject of many ancient panegyrics, and of one of the most elaborate of the hymns of Prudentius. He was one of the deacons of Rome, in the pontificate of Sixtus I. (3d c.), and as such was especially charged with the care of the poor, and the orphans and widows. In the persecution of Valerian, being summoned, according to the legend, before the prætor as a Christian, and being called on to deliver up the treasures of the church, he mockingly produced the poor and the sick of his charge, declaring that "those were his treasures"; and on his persisting in his refusal to sacrifice, being condemned to be roasted on a gridiron, he continued throughout his tortures to mock his persecutors. Many of the details of his martyrdom are probably due to the imagination of the poetical narrator; but the martyrdom is unquestionably historical, and dates from the year 258. His feast is celebrated on Aug. 10.

LAWRENCE, Abbott, LL.D., 1792–1855; b. Groton, Mass. He served an apprenticeship in Boston to his brother Amos, and in 1814 entered into partnership with him. The brothers Lawrence carried on an extensive trade in the sale of cotton and woolen goods on commission. They were the agents of the cotton manufactories at Lowell, and were afterwards heavily interested in the manufacturing corporations at the new town of Lawrence, which was named in honor of their firm. Abbott Lawrence served a term in congress 1835–37, and a partial term 1839–40. He was a prominent member of the whig party, whose nomination for the vice-presidency, in 1848, he lost by only six votes. Gen. Taylor, on his accession to the presidency, offered Lawrence a seat in the cabinet, which he refused, but accepted the place of minister to England, where he remained for three years, when he was recalled at his own request. In London he

entertained with great splendor, and received the most flattering social attentions. Like his brother Amos, Abbott Lawrence was a man of great benevolence, and besides his liberal private charities, founded and endowed at Harvard university a scientific department, called in his honor the Lawrence scientific school.

LAWRENCE, Amos, 1786–1852; b. Groton, Mass. He began business in Boston as a dry-goods merchant, 1807; took his brother Abbott as partner in 1814; and retired from active business in 1831, thenceforward devoting his time to the care of his large property and to benevolent objects. He is said to have given over $600,000 for charitable and educational purposes in the last 20 years of his life. He was a liberal benefactor of Williams college, of the academy in Groton, of the theological seminary at Bangor, Me., and of Kenyon college, Ohio. His private charities also were large.

LAWRENCE, George Alfred. See page 896.

LAWRENCE, James, 1781–1813; b. Burlington, N. J.; entered the navy as a midshipman in 1798; was promoted to lieut. in 1802; and distinguished himself in the bombardment of Tripoli. He was prominent in the war with England, 1812–15; in command of the *Hornet* near the mouth of the Demerara river captured the British sloop of war *Peacock*, Feb. 24, 1813, for which exploit he received from congress a gold medal, and was promoted to command the frigate *Chesapeake*, and was mortally wounded in the engagement between the British frigate *Shannon* and the *Chesapeake* in Boston harbor, June 1, 1813. This was the most desperate sea-fight of the war, the Americans not surrendering until nearly all their officers were killed or wounded. Capt. Lawrence, while being carried below, uttered his since celebrated exclamation, "Don't give up the ship." He died in Halifax, July 5. This distinguished officer lies buried in Trinity church-yard, New York, where his monument is a chief object of interest.

LAWRENCE, Baron the right honorable John Laird-Mair, is younger son of lieut.-col. Alexander Lawrence, who served in the Mysore campaign, and at the capture of Seringapatam. Born at Richmond, Yorkshire, 1811, he obtained, in 1827, a presentation to Haileybury college, where he carried off the chief prizes. His first years in the Indian civil service were spent in Delhi and the neighborhood. On the annexation of the Punjab, Lawrence was appointed commissioner, and afterwards lieut.gov. of the Punjab. When the Indian mutiny broke out, he proved the mainstay of the British dominion in India. The once restless Sikhs had become so attached to his firm and beneficent rule, that Lawrence was enabled to send troops to the relief of Delhi, etc. So timely was this succor, and so great was his foresight, that he was styled "the savior of India." On his return to England he received the thanks of parliament, with the grant of a pension of £1000 a year. He was made a baronet in 1858, and a privy-councilor in 1859. In 1861 Lawrence was nominated one of the knights of the "Star of India." In 1863 he succeeded the late lord Elgin as gov.gen. of India; he was made a member of the Indian council, and the court of directors of the East India company granted him a life pension of £2000 a year. In 1869 he was raised to the house of peers. At the first election of the London school-board in 1870, lord Lawrence was elected chairman, a post he subsequently resigned.

His elder brother, brig.gen. Sir Henry Montgomery Lawrence, born in 1806, was chief commissioner of Lucknow, and virtually governor of Oude when the Indian mutiny broke out. While in command of the handful of heroic men who defended the women and children in the residency of Lucknow, sir Henry was wounded by the explosion of a shell, and died July 4, 1857. He was the founder of the Lawrence asylum for the reception of the children of the European soldiers in India. A monument to his memory has been placed in St. Paul's cathedral.

LAWRENCE, Sir Thomas, president of the royal academy, was b. at Bristol in 1769, and at the early age of ten years entered on the profession of a portrait-painter in crayons, at Oxford, where he immediately obtained full employment. There is an engraving which bears to have been "directed by I. K. Sherwin," the celebrated engraver, of a portrait of the young artist; it is dedicated in the following terms: "To the nobility and gentry in general, and the university of Oxford in particular, who have so liberally countenanced his pencil, this portrait of Master Lawrence is inscribed by their most devoted and most grateful servant, T. Lawrence, senior." It was published by Lawrence, senior, at Bath, June 18, 1783, along with a print of Mrs. Siddons in the character of "Zara," drawn by Master Lawrence, and engraved by J. R. Smith. The young artist next set up at Bath, where he met with great encouragement; and, at the age of 18, settled in London, and entered as a student of the royal academy, having a year previously taken to painting in oil. His success was extraordinary; in 1791, before he attained the age required by the laws of the academy, he was elected a supplemental associate by desire of the king; on Reynolds's death a year afterwards, was appointed limner to his majesty; was made a royal academician in 1798; knighted in 1815; and on Benjamin West's death in 1826, succeeded him as president of the royal academy. He died in London, Jan. 7, 1830. Lawrence was the favorite portrait-painter of his time, had an immense practice, and obtained larger prices for his works than were ever paid to any previous portrait-painter. His talent as a painter was doubtless overrated during his life, but justice has scarcely been done to it of late years; for his style, though in many respects meretricious, was greatly influenced by the fashion and dress of the period, and in time to come, impressions of the principal characters who figured during the regency,

and in the reign of George IV., will be taken mainly from his works. His portraits in the Waterloo gallery at Windsor are of the greatest historical value. He was a man of great urbanity and fine taste, and left a most valuable collection of drawings by the old masters, now unfortunately broken up. See *Life and Correspondence of Sir T. Lawrence,* by Williams (1831); and Cunningham's *Lives of British Painters* (1833).

LAWRENCE, Timothy Bigelow, 1826–69; b. Boston; son of Abbott; graduated at Harvard in 1846. He was an attaché of the American legation in London, while his father was minister at the British court. In 1862–69 he held the post of U. S. consul-general in Italy. Died in Washington, D. C.

LAWRENCE, Sir William, a distinguished surgeon, was b. at Cirencester, in Gloucestershire, in July, 1783. In 1800 he went to London, and was apprenticed to Mr. Abernethy, by whom before the end of three years he was appointed demonstrator in anatomy to Bartholomew's hospital. In 1813 he was made surgeon to the hospital, and was chosen fellow of the royal society; and after holding various important surgical appointments, he became, in 1815, one of the professors of anatomy to the royal college of surgeons. In 1828–29 he succeeded his teacher, Mr. Abernethy, as lecturer on surgery to St. Bartholomew's. From this period Lawrence took an active share in the great questions of reform, which divided the medical world as much as the political, and played the part alternately of an advocate and an opponent of innovation. He made many enemies, but continued to enhance his reputation as a surgeon and his position as a practitioner, and contributed many valuable works to the literature of his profession. He succeeded sir Benjamin Brodie as sergeant-surgeon to the queen, on which occasion he received his baronetcy. He died of paralysis at the age of 83, in Whitehall, on July 5, 1867. His writings, which are very numerous, are chiefly the following: *A Description of the Arteries of the Human Body, Reduced into the form of Tables,* translated from the Latin of Adolphus Murray, professor of anatomy at Upsal; *The Treatment of Hernia; An Introduction to Comparative Anatomy and Physiology, being the Introductory Lecture delivered at the Royal College of Surgeons in* 1819; *A Treatise on the Venereal Diseases of the Eye;* and *A Treatise on the Diseases of the Eye,* in general, etc. Of these works, the most important for his reputation and for the profession are those on the venereal diseases of the eye, and on hernia.

LAWRENCE, William, b. Mt. Pleasant, Ohio, 1819; graduated at Franklin college, Ohio, in 1838, and at the Cincinnati law school in 1840. He resided successively at McConnellsville and Bellefontaine, where he was successful in the practice of the law. At the latter place he edited the *Logan Gazette,* and, for a time, the *Western Law Monthly.* He also served successively in both branches of the state legislature, where he founded the reform school, and secured the passage of the free-banking law. From 1856 to 1864 he was a judge of the court of common pleas. He served for a time as col. of the 84th Ohio in the war of the rebellion, and was a member of congress from 1865 to 1871, and again in 1873–74. He edited vol. xx. of the *Ohio Reports,* and wrote a work on the *Ohio Civil Code,* and another on *The Law of Interest and Usury.*

LAWRENCE, William Beach, ll.d., 1800–81; b. N. Y.: grad. at Columbia college, and admitted to the bar in 1823. He was secretary of the American legation at London, 1826–28, and during a part of that time was *chargé d'affaires.* On his return to the United States he devoted himself to the practice of his profession, in which he attained high rank. He became a citizen of Rhode Island in 1850, and was elected lieut.gov. the next year. He has written several law-books, but is best known by his edition of Wheaton's *International Law,* which appeared in 1855. While in active practice at the bar he made a specialty of cases before the court of claims at Washington.

LAWRENCEBURG, a city of Indiana and the capital of Dearborn co., situated upon the Ohio river, 20 m. below Cincinnati, and upon the Ohio and Mississippi and the Indianapolis, Cincinnati, and Lafayette railroads. Pop. 4,668. It has 7 churches, a national bank, and 2 weekly newspapers, and is the center of a considerable trade. It is the terminus of the White Water canal, which affords excellent water-power. This place was the scene of some of Henry Ward Beecher's earliest ministerial labors.

LAWRENCE SCIENTIFIC SCHOOL. See Harvard College.

LAWRENCE, ST. See Saint Lawrence, *ante*

LAWSON, John, b. Scotland; visited America about 1700, and undertook the government survey of the Carolinas, which he conducted for a number of years. In 1712, while engaged in explorations to this end, in the company of baron De Graffenried, a Swiss, who was examining the country with a view of colonizing, he incurred the enmity of the natives, and both were captured. The baron was permitted to go free on paying a ransom, but Lawson was burned at the stake. He wrote *Journal of* 1000 *Miles' Travel among the Indians, with a Description of North Carolina* (Lond., 1700; republished in several editions; and translated into German, and published in Hamburg, 1722).

LAWSON, Sir Wilfrid, b. 1829; a member of parliament for Carlisle, Eng.; has been prominent for his labors in the cause of total abstinence, and as the leader of the United Kingdom alliance. In 1864 he presented and advocated the permissive bill, which allowed two-thirds of the inhabitants of a parish or township to refuse to grant licenses for the sale of spirituous liquors. This was finally carried, 1880.

LAW-TERMS. The usual law-terms in England and Ireland mean those periods of the year during which the law-courts sit in banc or in full court to dispose of business. These are of ancient origin, and are now fixed by statute as follows: Hilary term begins Jan. 11, ends Jan. 31; Easter term begins April 15, ends May 8; Trinity term begins May 22, ends June 12; Michaelmas term begins Nov. 2, ends Nov. 25. Though the courts always sit at those periods, yet they have a power of appointing sittings after term also, which power is always exercised for the dispatch of arrears of business. And the judges also practically sit nearly all the year round, disposing of business of one kind or another, except in the long vacation, which extends from Aug. 10 to Oct. 24. But even during that period also, one or more judges attend to perform incidental business; and it is only for some purposes, and for some kinds of business, that the long vacation acts as a suspension of hostilities.

In Scotland the law-terms are differently arranged. The court of session sits from Oct. 15 to Mar. 20, and from May 12 to July 18. But there, also, the judges are employed in other business during the intervals.

As to the quarter-days usual between landlord and tenant, see LANDLORD AND TENANT.

LAWTON, S. Car. See page 896.

LAWYER, in the United Kingdom, is not a technical term of law, but a popular name given to those who are either practitioners of the law or intimately connected with its administration. In Great Britain and Ireland lawyers are subdivided into two classes. See ATTORNEYS AND SOLICITORS, BARRISTERS, ADVOCATES. In the United States an attorney acts as counsel, and *vice versâ*, there being no similar subdivision of the profession, and the expediency of the subdivision has often been canvassed in the United Kingdom of late years.

LAWYER (*ante*). In the United States lawyers are called indifferently attorneys and counselors-at-law. Lawyers who devote themselves specially to patent causes are often called solicitors. Candidates for admission to the bar *are required* in most of the states to pursue a course of legal study either at a reputable law-school or in the office of some practitioner, and to pass a satisfactory examination before a court or before examiners appointed by a court for that purpose.

In England and Ireland lawyers are divided into attorneys, and advocates, counselors, or barristers; the duties of the former are to take charge of and prepare the suit for trial, those of the latter to give counsel regarding the suit and to conduct and argue it in court. A person applying for admission as an attorney must have been an apprentice for 5 years with some member of the bar, or for 3 years if the applicant has a degree from Oxford, Cambridge, or Trinity college, Dublin. The other class of lawyers, the advocates, counselors, or barristers, are called to the bar from the inns of court. An attorney practicing in a court of equity is called a solicitor; in an ecclesiastical or admiralty court, a proctor. The services of an English barrister are theoretically gratuitous, but he is paid by retainers. An English attorney or solicitor is paid according to a fixed system of fees.

In Scotland lawyers are divided into solicitors, advocates, and writers; and there is a privileged body of practitioners known as writers or clerks to the signet. A lawyer, being an officer of court, is bound to conduct himself properly in the suits on which he is retained, and on proof of misconduct or dishonesty in his profession, may be disbarred.

Lawyers are excused from serving on juries, and are exempt from arrest on civil process while in attendance upon court on professional business. The communications of a lawyer with his client are confidential, and a lawyer is protected by the law and cannot be compelled to disclose his client's secrets. In some states and territories, by recent enactment, women are made eligible for admission. For a more detailed account of the classes into which lawyers are divided in Great Britain see ATTORNEY; ADVOCATE; BARRISTER; KING'S COUNSEL; WRITERS TO THE SIGNET; *ante*.

LAY, BENJAMIN, 1681–1760; b. Colchester, England. He emigrated to Barbadoes in 1710, where his opposition to slavery subjected him to annoyance and persecution, which led to his removal to Abington, Penn. Slavery was then tolerated among the Quakers as well as others, and he became an agitator against it, uniting in this work with Anthony Benezet, Benjamin Franklin, and other eminent men. In 1817 he withdrew from the society of Friends as a testimony against it on account of its tolerance of slavery. He lived long enough to witness a great change of sentiment among the Quakers, but died 20 years before slavery was wholly exterminated from the society. In 1737 he wrote a tract, which Franklin printed, entitled, *All Slavekeepers that keep the Innocent in Bondage Apostates.* He carried his opposition to slavery so far as to manufacture his own clothing, in order to avoid the use of the products of slave labor. He opposed tea-drinking as injurious to health and a needless expense, and was very eccentric in some of his personal habits; but he was greatly respected for his sincerity and the spirit of self-sacrifice which he exhibited. Died at Abington, Penn.

LAY, HENRY CHAMPLIN, D.D., LL.D., b. at Richmond, Va., 1823; graduated at the university of Virginia in 1842, and subsequently at the theological seminary of the Episcopal church in that state; ordained deacon in 1846; was minister for a time in Lynnhaven parish, Va., but removed to the church of the Nativity, Huntsville, Ala., in 1847;

ordained priest in 1848; consecrated missionary bishop of the south-west in 1859, and transferred to the diocese of Easton in 1869.

LAYAMON, also LAWEMAN, author of the *Brut,* a metrical chronicle of Britain from the arrival of the fabulous Brutus to the death of king Cadwallader, 689 A.D., was, he himself tells us, a priest at Ernely, on the Severn, in Worcestershire, and appears to have flourished about the beginning of the 13th century. Nothing more is known concerning him. The value of the *Brut* is not so much literary as linguistic. It has no high pretensions to originality, being confessedly a compilation from Bede, St. Augustine (of England), St. Albin, and more particularly Wace, the Anglo-Norman poet, of whose *Brut d'Angleterre* it is in fact mainly an amplified translation. But Wace's performance is itself only a translation, with additions, from Geoffrey of Monmouth's Latin *Historia Brittonum;* and that again at least declares itself to be in turn a translation from a Welsh or Breton original (see GEOFFREY OF MONMOUTH). It will thus be seen that Layamon's work is only a third reproduction of a Celtic story; but in justice to the author it must be stated that his version is more poetical and dramatic than those of his predecessors. The great value of the poem, however, is, as we have said, linguistic rather than literary. It shows us the Anglo-Saxon changing or changed into early English, and a study of its peculiarities of grammar and phraseology enables us to trace the process by which the Saxon of Alfred and the chronicle became transformed into the English of Chaucer and Wycliffe. One curious and important fact is determined by it—viz., that 200 years after the Norman conquest, the use of words of French origin—so marked a feature of Chaucer's diction—had scarcely begun. In the 32,250 lines which the poem contains, there are not more than 50 such words. The versification is very arbitrary, exhibiting sometimes the alliteration of Anglo-Saxon, and sometimes the rhyme of French poetry. The work was edited (with a literal translation, notes, and a grammatical glossary) for the society of antiquaries of London by sir Fred. Madden (Lond. 3 vols. 1847).

LAYARD, AUSTEN HENRY, English traveler and diplomatist, was b. at Paris, Mar. 5, 1817. He was destined for the law, but finding the profession little congenial to his tastes, he set out on a course of Eastern travel, visited several districts of Asiatic Turkey, and became familiar with the manners and dialects of Persia and Arabia. On his first journey along the banks of the Tigris, in 1840, he was struck with the ruins at Nimrud —a village near the junction of the Tigris and the Zab, pointed out by local tradition as the site of the original city of Nineveh—and felt an irresistible desire to examine the remains of the "birthplace of the wisdom of the west." In 1842, M. Botta, the French consul at Mosul, conducted some extensive excavations at that place, and Layard returning to the region, again directed his attention to Nimrud. It was 1845 before he could obtain the requisite means and facilities for his search, and he then, with the help of some Arabs, began secretly to dig in the mound supposed to contain the ruins. He soon came upon some sculptured remains, and became convinced that he had touched a rich vein of archæological treasure. His excavations were resumed in 1846 and 1847, and his energy and perseverance were rewarded by the discovery of the ground remains of four distinct palatial edifices. The walls had been lined with large slabs of gypsum or alabaster, covered with bas-reliefs and cuneiform inscriptions. Many of these were sent to England by Layard, together with gigantic-winged human-headed bulls and lions, and eagle-headed deities. They were placed in the British Museum, of which they have since remained the chief attraction. Layard at first conducted his search at his own expense; he was, in 1845, liberally assisted by lord Stratford de Redcliffe, then British ambassador in Constantinople; and eventually, as the value of these specimens of Assyrian art began to be known, the house of commons voted a sum of £3,000, which was applied by the trustees of the British museum in continuing the excavations under Layard's superintendence. On his return to England he published a narrative of his explorations, under the title of *Nineveh and its Remains,* and another work entitled *Monuments of Nineveh.* He was presented with the freedom of the city of London, received the honor of D.C.L. from the university of Oxford, and was lord rector of Aberdeen university in 1855–56. In 1852 he became M.P. for Aylesbury, and in 1860 for Southwark; from 1861 till 1866 he was under-secretary of state for foreign affairs. In 1869 he went as British ambassador to Spain; and in 1877 he was sent to Constantinople at first as temporary, then as ordinary ambassador. His markedly philo-Turkish sympathies during and after the war provoked some comment at home. In 1878 the order of the bath was conferred on him.

LAYBACH. See LAIBACH, *ante.*

LAY BROTHERS, a class of uneducated persons in Roman Catholic convents who are devoted to the service of the monks, from whom they are distinguished by their dress and in whose stated religious services they are not required to join. Their vow binds them only to obedience and constancy. They were first employed, so far a appears, in the 11th century. In nunneries similar services are rendered to the nuns by lay sisters who are sometimes called sisters converse.

LAYCOCK, THOMAS, b. at Wetherby, Yorkshire, 1812; received his education at London, Paris, and Göttingen; in 1855 was appointed professor of the practice of physic and clinical medicine at Edinburgh; and in 1869 physician to the queen in Scotland.

He has given much attention to sanitary science, physiology, mesmerism, insanity, etc. Among his works are *The Nervous Diseases of Women; Mind and Brain, or the Correlations of Consciousness and Observation;* and *Methods of Medical Observation.*

LAY DAYS, a term of the maritime law denoting the number of days granted in the charter-party to the charterer or freighter of a vessel to load or unload in. Within the lay days no charge is made, but after their expiration a sum, stated in the charter-party, is charged and called demurrage. Lay days begin upon the arrival of the vessel at the usual place for discharging cargo. Sundays are counted in reckoning lay days, unless there be provisions to the contrary in the charter-party. See DEMURRAGE.

LAYING, or LAYERING, a mode of propagating trees, shrubs, and perennial herbaceous plants, which is very frequently employed by gardeners and nurserymen. It consists in bending and fastening a branch, so that a portion of it is imbedded in earth, there to throw out roots, the extremity being made to grow erect in order to form a new plant. The separation from the parent plant is not effected till the layer is sufficiently provided with roots. Any injury which prevents the free return of the sap greatly promotes the formation of roots, and a notch is therefore usually made in one side of the branch, at the place where the formation of roots is desired; it is also often a little split up from the notch; and sometimes a ring of bark is cut off, or a wire is twisted round it. The time which must elapse before the layer should be separated from the parent plant is very various; a few months being sufficient for some, and two years requisite for others. Many plants which can be propagated by cuttings are more easily and successfully propagated by layers.

LAYNEZ, or LAINEZ, DIEGO, 1512–65; b. Spain; educated at the high school of Alcala, and at the age of 19 years visited Paris, and became an ardent follower of Loyola. He accompanied the latter to Rome, where pope Paul III. appointed him a professor in the *Collegium de Sapienza.* Loyola died in 1556, and Laynez was elected general of the order of the Jesuits the following year. Offered a cardinal's hat, he refused it, designing to devote his life to the service of the new order. He represented it in the council of Trent; and there and elsewhere sustained by discussion and controversy his tenacious ideas in favor of the absolute infallibility of the pope. He laid the foundation at Venice of a college of Jesuits, and placed special stress on the importance of education which should influence the minds of the young for the good of the church. The ambitious nature of Laynez led him to advocate and practice craft and cunning in affairs, and he may be considered to have formed the order of the Jesuits on this principle, to which it has ever since adhered. Yet even Laynez, despite his zeal, fell under suspicion of the Spanish inquisition. He was the author of several theological writings, but none of these, save a few speeches, were ever printed.

LAZARISTS, an order of missionary priests originated in France by Vincent de Paul in 1624. Their chief function was to look after the religious interests of the country people and the lower classes. The new institution soon received the royal sanction, was officially approved in 1626 by the archbishop of Paris, and in 1632 was made by pope Urban VIII. a special religious society with the name of the *priests of the mission,* and Vincent was appointed by him its superior. They received also the same year from Adrien Le Bon, prior of St. Lazarus, the use of his priory, whence they were called Lazarists. As their primary object was to dispense religious instruction and assistance among the poorer classes of the rural districts of France, it was stipulated in the original deed of endowment that they should "neither preach nor administer any sacrament in cities which are the seats of bishops, archbishops, or of courts of justice, except in cases of extreme necessity." Besides their special work, they sought to reform the clergy by means of conferences and the establishment of seminaries. At first they lived in poverty and harmony without being subject to any laws; but in 1655 Alexander VII. confirmed their society, and prescribed a constitution, according to which for admission to the congregation one must have spent two years in a seminary, and must bind himself by the vows of poverty, chastity, and obedience, to care for the spiritual wants of the poor. Their dress is that of the secular clergy. During the lifetime of St. Vincent his disciples had visited nearly all the dioceses of France, and the missionaries had visited also Italy, Corsica, Poland, Ireland, Scotland, Algeria, Tunis, Madagascar. They were invited to Poland in 1651 by Maria Louisa, wife of king John Casimir II. During the French revolution the Lazarists suffered as all other religious organizations did, but were restored as early as 1804, and received from the public exchequer 15,000 francs, also a hospital in Paris for the establishment of a central institution and novitiate. Napoleon abolished the Lazarists in 1809, suppressed their houses, and confiscated their property. But in 1816 they were restored to their former position by Louis XVIII., and their seminary was transferred to a house in Rue Sèvres. In 1829 the pope appointed Pierre Dewailly superior-general. In 1862, according to P. Karl vom heil. Aloys, the Lazarists had 18 houses in France, 27 in Italy, 4 in the British isles, 6 in Germany, 3 in the Pyrenean peninsula, 10 in Poland; in Asia, they had establishments in Asiatic Turkey, Persia, Manilla, 5 provinces of China; in Africa, at Alexandria, Egypt, Algiers, Mustapha, Abyssinia; in America, 17 establishments. In 1874 the number of Lazarists in both hemispheres was estimated at 3,000.

LAZARUS, EMMA. See page 897.

LA'ZULITE, or AZURITE, a mineral long confounded with lapis lazuli (q.v.), but although somewhat similar in color, very different in composition; consisting chiefly of phosphoric acid and alumina, with magnesia and protoxide of iron. It occurs imbedded in quartz, or in fissures in clay-slate, in Styria, North Carolina, Brazil, etc.

LAZZARI, DONATO. See BRAMANTE, *ante.*

LAZZARO'NI, a name said to be derived from that of Lazarus in the parable, and until lately, designating a particular class of the inhabitants of Naples. They had no fixed habitations, regular occupation, or secure means of subsistence, but occasionally obtained employment as messengers, porters, boatmen, itinerant venders of food, etc. They have performed an important part in all the revolutions and movements in Naples for a long period, and in recent times have allied themselves to the cause of despotism. They were wont annually to elect a chief (*capo lazzaro*), who was formally recognized by the Neapolitan government, and who exercised an extraordinary power over them. Of late, they have lost many of their peculiarities, have come more within the pale of civilization, and, in fact, are no longer recognized as a separate class, though the name is still given to the boatmen and fishermen of the city, who are really the most industrious and best-principled of the Neapolitan populace.

LE, or LEH, the capital of Ladakh (q.v.) or middle Thibet, 2 m. to the n. of the upper Indus, in lat. 34° 10′ n., and long. 77° 40′ e., at an elevation of more than 11,500 ft. above the sea. Pop. variously estimated at from 4,000 to 10,000. Le is a main entrepot between Tartary and the Punjab, and for the shawl-wool of Thibet.

LEA, HENRY CHARLES, b. in Philadelphia, 1825; son of Isaac. He inherited his father's taste and aptitude for science, and when only 14 years of age wrote a valuable paper for *Silliman's Journal.* He devoted much time to the study of conchology, and published *Description of New Species of Shells.* At a later period he studied the organization of society in the middle ages, publishing *Superstition and Force: Essays on the Wager of Law, the Wager of Battle, the Ordeal and Torture;* a *Historical Sketch of Sacerdotal Celibacy in the Christian Church,* and *Studies in Church History; The Rise of the Temporal Power, Benefit of Clergy, and Excommunication.* Mr. Lea has long been at the head of the publishing house of Lea & Blanchard. He was prominent in patriotic service during the war of the Rebellion, has written much on political subjects, and is known to have been engaged upon a history of the inquisition, with special reference to America.

LEA, ISAAC, LL.D., b. at Wilmington, Del., 1792, of Quaker descent. In boyhood he entered upon a mercantile career, but his taste for natural history, especially geology, was so strong as to draw him aside from his original purpose. Devoting his spare time to his favorite studies, he early made large collections of fossils, minerals, and shells, and in 1815, when he was but 23 years of age, he was elected a member of the academy of natural sciences in Philadelphia, and began to contribute papers to its *Journal.* Marrying a daughter of Matthew Carey, he connected himself with the publishing house of which that eminent man was so long the head, and in 1827 began a remarkable series of papers upon fresh-water and land mollusks, which were continued for nearly 50 years, forming the materials for a great work upon American unionidæ. He was elected a member of the American philosophical society in 1828, and in 1858 was made president of the academy of natural sciences. He made a collection of unionidæ, the richest in the world, embracing nearly 10,000 specimens, and his papers, read chiefly before scientific associations in Philadelphia, numbered more than 150. He published *Contributions to Geology* and *Fossil Footmarks in the Red Sandstones of Pottsville,* and collected into 13 vols. his miscellaneous papers under the title of *Observations on the Genus Unio.*

LEA, MATHEW CAREY, b. Philadelphia, 1823; grandson of Matthew Carey; devoted himself to the study of chemistry, especially analytical. He has made important analyses, and is a recognized authority on photography, publishing, 1868, *A Manual of Photography.*

LEA, THOMAS GIBSON, 1785–1844; b. Wilmington, Del.; brother of Isaac. He made a *Catalogue of Plants Collected near Cincinnati,* which was published in 1849 by the late Dr. W. S. Sullivant.

LEACH, WILLIAM ELFORD, 1790–1836; b. Plymouth, Eng.; in 1809 became a pupil of Dr. Abernethy at St. Bartholomew's hospital. Entering with enthusiasm into the study of zoölogy, he was appointed curator of the British museum. In 1813 he published a work on *Crustaceology.* He was the first to analyze the *Insecta* of Linnæus into *Myriopoda, Arachnida, Insecta,* and *Crustacea.* He published a *Zoölogical Miscellany* in 3 vols., and began a *History of British Crustacea;* but an affection of the eyes compelled him to relinquish his work when only 17 numbers had appeared, and also to resign the post of curator.

LEACOCK, HAMBLE JAMES, 1795–1856; b. Cluff's Bay, Barbadoes; descended from a noble English ancestry. His father was a slaveholder in Barbadoes. The son received his early education at Codrington college, Barbadoes, became reader in his native parish, studied with his pastor, rev. W. M. Harte, and obtained deacon's orders in 1826.

While assistant priest of St. John's church he gave the privileges of the church to all the slaves of the parish, at the same time freeing his own slaves. This awakened so much opposition that the bishop removed him to St. Vincent, and then to Nevis. Difficulty with the bishop, insurrection of the slaves, and fall of property occurring, he removed to the United States, where he was settled in Kentucky and Tennessee. In 1840 he took charge of a small farm near New Brunswick, N. J., supplying churches in the vicinity. In 1841 and 1847 he revisited the West Indies, preaching vehemently against the prevailing vices. In 1855 he sailed for Africa as a missionary of the West Indian church association, and landed at Freetown, Sierra Leone. By the aid of the bishop and governor he founded the station, the Rio Pongas. From a converted negro chief he obtained a site for his dwelling and chapel; opened a school for boys, which was very successful. His health failing he went to Sierra Leone, but soon returned to his post, where he died. A large missionary field was opened as the result of his labors.

LEAD (symb. Pb., equiv. 103.7—new system, 207—spec. grav. 11.4) is a bluish-white metal of considerable brilliancy, which soon disappears on exposure to the air, owing to the formation of a thin film of oxide. It is so soft that it may be readily cut with a knife, or may be made to take impressions, and it leaves a streak upon paper. It may be cut or beaten into thin sheets, but in ductility and tenacity it is low in the scale of metals. It is readily fusible at a temperature of about 625°, and at a higher temperature it absorbs oxygen rapidly from the air, and the oxide thus formed volatilizes in the form of white fumes.

The combined action of air and water on lead is a subject of great practical importance, in consequence of the metal being so frequently employed in the construction of cisterns and water-pipes. The lead becomes oxidized at the surface, and the water dissolves the oxide; this solution absorbs the carbonic acid of the atmosphere, a film of hydrated oxycarbonate of lead ($PbO,HO + PbO,CO_2$) is deposited in silky scales, and a fresh portion of oxide of lead is formed and dissolved, and in this way a rapid corrosion of the metal ensues. This action is materially increased by the presence of some salts and diminished by the presence of other salts in the water. It is much increased by the occurrence of chlorides (which, as chloride of sodium, is often present in spring water), and of nitrates and nitrites (which are often present in spring and river waters, from the decomposition of organic matter); while it is diminished by the sulphates, phosphates, and carbonates, and especially by carbonate of lime, which is an extremely common impurity in spring water. In the latter case, a film of isoluble carbonate of lead is rapidly formed on the surface, and the metal beneath is thus protected from the action of the water. If, however, the water contain much carbonic acid, the carbonate of lead may be dissolved, and considering the dangers that arise from the use of water impregnated with lead, cisterns constructed of slate are far preferable to leaden ones.

Pure lead is of very rare occurrence. Almost all the lead of commerce is obtained from galena, the native sulphide of lead, by a process to be presently explained. The lead thus obtained is often *nearly* pure, and to obtain it *perfectly* pure it should be reduced with black flux from the oxide left by igniting the pure nitrate or carbonate.

The compounds of lead with oxygen are four in number—viz., a suboxide, Pb_2O, which is a black powder of no importance; a protoxide, PbO, which is the base of the ordinary salts of the metal; a binoxide, PbO_2; and red lead, which is a compound of the two last-named oxides, and is usually represented by the formula $2PbO,PbO_2$. The protoxide is commonly known as *litharge*. It is obtained on a large scale by the oxidation of lead in a current of air, when it forms a scaly mass of a yellow or reddish tint. If the oxidation be effected at a temperature below that required for the fusion of oxide, a yellow powder, termed *massicot*, is obtained. Litharge is much used by the assayer (see ASSAY) as a flux; it enters largely into the composition of the glaze of common earthenware, and it is employed in pharmacy in the preparation of plasters. A mixture of 1 part of massicot with 10 of brickdust, made into a paste with linseed-oil, forms the compound known as *dhil mastic*, which, from the hardness with which it sets, is frequently employed to repair defects in stone-facings.

The most important of the salts of the protoxide of lead are—1. The *carbonate* (PbO,CO_2), which occurs native as a beautiful mineral in transparent needles or fibrous masses, and which is prepared under the name of *white lead* on a large scale as a pigment by a process to be subsequently described. The carbonate is insoluble in water, unless it is largely charged with carbonic acid. It is quickly blackened by exposure to hydrosulphuric acid (sulphureted hydrogen), either in the form of gas or in solution, and this is a serious drawback to the use of the lead salts as pigments. 2. The *sulphate* (PbO,SO_3), which occurs native in white prismatic crystals, and is formed as a heavy white precipitate on adding sulphuric acid or a soluble sulphate to a soluble lead salt. 3. The *nitrate* (PbO,NO_5), which is formed by dissolving lead or its protoxide in dilute nitric acid. 4. The *chromates*, of which the principal are the neutral chromate or *chrome yellow* (PbO,CrO_3), and the dichromate or *orange chrome*. These are much used as pigments, and in calico-dyeing. 5. The *acetates*. The ordinary or neutral acetate ($PbO,C_4H_3O_3 + 3aq.$) is prepared on a large scale by the solution of litharge in distilled vinegar, and evaporation, when the salt is obtained in four-sided prisms, or more commonly in a mass of confused minute white crystals, which at 212° lose their water of

crystallization. From its appearance, and from its sweetish taste, it derives its common name of *sugar of lead.* It is much used both in medicine and in the arts. Basic acetate of lead, regarded by some chemists as a diacetate, and by others as a triacetate, and commonly known as *Goulard's extract,* is prepared by boiling a solution of sugar of lead with litharge, and adding alcohol, when the salt separates in minute transparent needles. It is the active ingredient of *Goulard water,* which is imitated by the *liquor plumbi diacetatis dilutus,* and of *Goulard's cerate,* which is imitated by the *ceratum plumbi compositum* of the London pharmacopœia.

The best tests for solutions of the salts of lead are the formation of a black sulphide with hydrosulphuric acid or hydrosulphate of ammonia, insoluble in an excess of the reagent; of a white insoluble sulphate with sulphuric acid, or a soluble sulphate; of a yellow chromate with chromate of potash; and a yellow iodide with iodide of potassium. All the salts of lead, insoluble in water, are soluble in a solution of potash. Before the blow-pipe on charcoal, the salts of lead yield a soft white bead of the metal, surrounded by a yellow ring of oxide.

Its use in Medicine.—The most important compound of lead in the materia medica is the *acetate of lead,* which is administered internally as an astringent and as a sedative. It is of service as an astringent, especially in combination with opium, in cases of mild English cholera, and even of Asiatic cholera, and in various forms of diarrhea. It will frequently check the purulent expectoration in phthisis, and the profuse secretion in bronchitis. In the various forms of hemorrhage—as from the lungs, stomach, bowels, or womb—it is employed partly with the view of diminishing the diameter of the bleeding vessels, and partly with the object of lowering the heart's action, and by these means to stop the bleeding. The ordinary dose is two or three grains, with half a grain of opium, in the form of a pill, repeated twice or thrice daily. If given for too long a time, symptoms of lead-poisoning (q.v.) will arise.

Mining, Smelting, etc.—Lead was largely worked by the Romans in Great Britain, and pigs with Latin inscriptions have been frequently found near old smelting-works. The mining of lead in England was formerly regulated by curious laws; some places, such as the King's Field, in Derbyshire, having special privileges. It was the custom in this district not to allow the ore to leave the mine till it was measured in the presence of an official called a *bar-master,* who set aside a 25th part as the king's cope or lot. Up to a comparatively recent period, persons were allowed to search for veins of the ore without being liable for any damage done to the soil or crops.

Lead ore is pretty generally distributed, but by far the largest supply of this metal is obtained from Great Britain and Spain, the former country yielding some 75,000 tons per annum, and the latter probably an equal supply. Nearly a fourth of the total British produce is procured from the Northumberland and Durham district, where there exists, at Allenheads, one of the largest mining establishments in the world. Scotland and Ireland furnish only a very small quantity.

With the exception of a little from the carbonate of lead, all the supplies of this metal are obtained from the sulphide of lead or galena (q.v.). The lead ore, when taken from the mine, is broken up into small pieces, "hotched," and washed, to separate impurities, by means of apparatus described under METALLURGY. Sulphide of lead, when tolerably pure, is smelted with comparative ease. It is first roasted in a reverberatory furnace. From 20 to 40 cwts. of galena are put into the furnace at a time, either with or without lime. In about two hours the charge becomes sufficiently roasted. During the process, the larger portion of the ore (PbS) takes up four equivalents of oxygen, and becomes sulphate of lead (PbO,SO_3), a little oxide of lead (PbO) is also formed, while another portion remains unaltered as sulphide of lead. After it is roasted, the ore is thoroughly mixed together, and the heat of the furnace suddenly raised. This causes a reaction between the unchanged and the oxidized portion of the ore, and reduces much of the lead, sulphureous acid being at the same time evolved. In the third stage, lime is thrown in and mixed with slag and unreduced ore. When this becomes acted on, the whole of the lead is practically separated from the ore, and is then run off at the tap-hole.

In some districts, the roasted ore is smelted on a separate ore-hearth called the Scotch furnace, where the heat is urged by bellows. Peat and coal are used as the fuel. This is a slower mode of smelting than the last, but yields a purer lead.

During the operation of smelting, a considerable quantity of lead is volatilized, and carried off as *fume* or *smoke,* which, when allowed to escape into the atmosphere, not only involves a loss of lead, but destroys all vegetation for some distance around the works, and poisons cattle and other animals feeding near them. Much attention has of late been paid to the obviating of these evils, and several plans are in use for the purpose. Where it can be done, no method is more effective than simply conducting the smoke from the furnaces through a long horizontal flue—say a mile in length—to a vertical stack. The fume condenses on the sides, certain openings being left for the purpose of collecting it. About 33 per cent of the fume thus recovered consists of metallic lead.

When lead contains antimony and tin as impurities, they are separated by fusing the metal in shallow pans, and allowing it to oxidize at the surface. In this way, the antimony and tin form oxides, and as such are skimmed off. Lead reduced from galena always contains a little silver, of which 8 or 10 ounces to the ton is a very common pro-

portion, although it often exists in much larger quantity. The separation of this silver is now greatly facilitated by means of a desilverizing process patented by the late Mr. H. Pattinson of Newcastle-on-Tyne. It consists in melting the lead, and allowing it to cool slowly, at the same time briskly stirring the melted mass. A portion of the lead is thus made to crystallize in small grains, which, as pure lead solidifies at a lower temperature than when alloyed with silver, leaves the uncrystallized portion richer in silver. In this operation, a row of, say, nine cast-iron pots are used. They are usually about 6 ft. in diameter, and each heated with a fire below. The lead from the smelting furnace is treated as above in the middle pot, from which the poorer crystallized portion is ladled with a strainer into the first pot on the right, and the richer portion, which remains liquid, is removed to the first pot on the left. With both kinds the process is several times repeated—the one becoming poorer and the other richer in silver every time, till the lead in the pot on the extreme right has had its silver almost entirely removed, and that in the pot on the extreme left contains about 300 ounces of silver to the ton. The silver is then obtained from this rich lead by melting it on a flat bone-ash cupel, placed in a reverberatory furnace, and exposing it to a current of air which reduces the lead to the oxide or *litharge* of commerce, leaving the silver on the cupel. Fully 600,000 ounces of silver are in this way annually separated from British lead, the latter at the same time being improved in quality.

Lead is an important metal in the arts. Rolled out into sheets, it is largely used for roofing houses, for water-cisterns, and for water-pipes. It is also of great service in the construction of large chambers for the manufacture of sulphuric acid. Its value for the manufacture of shot is well known. Alloyed with antimony, etc., it is largely consumed for type-metal, and with tin for solder. Much lead is also required for the manufacture of pewter, Britannia metal, etc. See ALLOY.

Of the compounds of lead other than alloys which occur largely in commerce, the following are the principal:

White Lead or Carbonate of Lead, a substance very extensively used as white paint, and also to form a body for other colors in painting. As much as 16,000 tons of it are annually made in England. White lead is still largely made by the old Dutch process which consists in treating metallic lead, cast in the form of stars or gratings, in such a way as to facilitate the absorption of carbonic acid. These stars of lead placed in earthenware vessels, like flower-pots, containing a little weak acetic acid, are built up in tiers in the form of a stack, and surrounded with spent tan or horse-dung. The heat given out from the dung volatilizes the acid, which, along with the air, oxidizes the lead. The acetic acid changes the oxide into the acetate of lead, and this is, in turn, converted into the carbonate by the carbonic acid given off from the hotbed. By this process, metallic lead requires from 6 to 8 weeks for its conversion into white lead. Several less tedious processes for the manufacture of a white paint from lead have been tried at various times, but the only one now practiced is that for the production of an oxychloride of lead, by acting on raw galena with hydrochloric acid.

Minium, Red Lead, or Red Oxide of Lead, is much consumed in the manufacture of flint-glass and porcelain, and to some extent as a pigment. It requires to be made of very pure lead, as a slight trace of copper would impart a color to glass. Minium is prepared by heating *massicot* or protoxide of lead to a temperature of 600° F. in iron trays, in a reverberatory furnace, carefully avoiding fusion. More oxygen is thus gradually absorbed; and a compound of the protoxide and the peroxide of lead is formed, having a bright red color, which is the red lead of commerce.—*Litharge* has been already noticed.

LEAD, THE, used on shipboard, for ascertaining the depth of water, consists of a piece of lead shaped like an elongated clock-weight, attached to a line of about 20 fathoms. The lower part of the lead is scooped out, and filled with tallow, that portions of the bottom may adhere. The *deep-sea lead* weighs from 25 to 30 lbs., and is attached to a line of far greater length.

LEADER, the name given to the performer in an orchestra who plays the principal first-violin.

LEADING NOTE (Fr. *note sensible*), in music, is usually understood to mean the sharp seventh of the diatonic scale, or the semitone below the octave, to which it leads. The most of the German theorists have now relinquished the term leading note, as every note, when it is felt that another immediately above or below it should follow, may be said to be a leading note.

LEADING QUESTION is a technical expression in law to denote a question so put to a witness as to suggest the answer that is desired or expected. Thus, if a witness is asked "Was he dressed in a black coat?" it is supposed the witness will answer, yes; whereas the proper way of putting the question is: "How was he dressed?" or, "What kind of coat?" etc. The rule established in courts of justice as to the correct practice in such matters is that when a witness is examined in chief, i.e., by the party who adduces such witness, leading questions are not allowed, except in one or two rare cases; whereas, when the witness is cross-examined, i.e., by the opposing party, leading questions may be put; for the object is to make the witness contradict and stultify himself, so that

the jury will disbelieve him. The above rule, however, only applies to material questions, for in immaterial questions leading questions may be put, so as to save time.

LEAD PLASTER. See DIACHYLON, *ante*.

LEAD-POISONING. Persons whose system becomes impregnated with lead, as, for example, painters, who are constantly handling white lead, or persons who for a length of time have been using water charged with a lead-salt, exhibit a series of phenomena of lead or saturnine poisoning.

The early phenomena, which constitute what Tanquerel des Planches, the highest authority on this subject, terms *primitive saturnine intoxication*, are (1), a narrow blue line, due to the presence of sulphide of lead, on the margin of the gums next the teeth; (2), a peculiar taste in the mouth, and a peculiar odor of the breath; (3), a jaundiced state of the skin, with more or less emaciation; (4), a depressed state of the circulation.

These premonitory phenomena are followed, unless remedial means are adopted, by the four following forms of disease, each of which may exist alone, or may be complicated with one or more of the others, or may follow the others, without, however, having any definite order of succession:

1. LEAD COLIC, which is by far the most frequent of the diseases.
2. LEAD RHEUMATISM or ARTHRALGIA, which in frequency is next to colic.
3. LEAD PALSY or PARALYSIS, which may affect either motion or sensation, and is next in frequency.
4. DISEASE OF THE BRAIN, which is the least common of all the forms of lead-poisoning, and is manifested by delirium, by coma, or by convulsions.

Lead Colic is characterized by sharp continuous abdominal pains, which are usually diminished on pressure; by hardness and depression of the abdominal walls; by obstinate constipation, slowness and hardness of the pulse, and general disturbance of the system. The blue line on the gums serves at once to distinguish it from other varieties of colic.

Lead Rheumatism is characterized by sharp pains in the limbs, unaccompanied by redness or swelling, diminished by pressure, increased by motion, and accompanied by cramps, with hardness and tension of the affected parts. It is distinguished from similar affections by the blue line on the gums.

Lead Palsy is characterized by a loss of voluntary power over certain muscles. It more commonly affects the upper than the lower extremity, and the muscles most frequently affected are those of the ball of the thumb and the extensors of the wrist.

The Treatment.—The patient should be placed in a sulphureted bath, which converts all the lead-salts on the skin into the inert black sulphide of lead. These baths should be repeated till they cease to cause any coloration of the skin. At the same time he should drink water acidulated with sulphuric acid, or a solution of sulphate of magnesia, with a slight excess of sulphuric acid, by which means an insoluble sulphate of lead is formed, which is eliminated by the purgative action of the excess of sulphate of magnesia. Iodide of potassium is then administered, which acts by dissolving the lead out of the tissues, and allowing it to be removed by the urine.

The palsy may be specially treated, after the elimination of the lead, by electricity, and by strychnine in minute doses.

Persons exposed from their occupation to the risk of lead-poisoning should be especially attentive to cleanliness; and if they combine the frequent application of the warm bath with the use of sulphuric lemonade or treacle beer acidulated with sulphuric acid, as a drink, they may escape the effects of the metallic poison.

*LEADVILLE, a t. in Colorado; pop. in 1885, 10,000; 170 m. from Denver, on the Denver, South Park and Pacific railroad, in southern Colorado, at an altitude of several thousand feet above the sea-level; the center of an extensive and important silver-mining region. The origin and growth of Leadville are extraordinary instances of the rapidity with which unity of interest will populate a neighborhood, however difficult may be the migration and settlement. In 1877 the site of the town of Leadville was a valley covered with sage-brush, and possessing only about 25 inhabitants. In the short period of two years this was transformed into a thriving, active city of as many thousands, from which poured forth daily an amount of wealth probably never before equaled by any community. The discovery of the remarkable deposit of silver in the hills about Leadville was made in 1877, by Messrs. Stevens and Wood, two prospectors who were engaged in gold-washing in California gulch, about 4 m. from the present Leadville. The discovery was made through the prevalence of a peculiar kind of stone, which, by getting into and choking their sluice-boxes, impeded the work of the miners. The attention of Mr. Wood was at length directed towards the examination of these stones, when he found that besides containing a large proportion of lead—which did not pay to work, on account of the distance of a market and the cost of transportation—they held also a small percentage of chloride of silver. Mr. Stevens followed up this analysis and discovery by tracing the fragments to their outcrop, and there locating a mine; and in the winter of 1877–78 he began working what was afterwards known as the Iron mine, and which was the first worked of the Leadville properties. The eminence containing the claims which made up this mine was called Iron hill, and its discovery was speedily followed by that of the Carbonate hill mines, which were soon developed, both these localities displaying extraordinary richness. Succeeding discoveries were made on

Fryer, Evans, and Long and Derry hills, all of these forming a part of the Mosquito range, whose different heights vary between 10,000 and 14,000 ft. above the sea-level, and which lie along the e. of the Arkansas river valley. These hills have been mined very thoroughly. The geological structure of the deposit has not been authoritatively surveyed, but in a general way it may be said to comprise—1, granite; 2, schistose rocks; 3, quartzite; 4, lime; 5, porphyrytic trachyte; 6, drift; the mineral being found between the fourth and fifth strata, the floor being limestone and the roof porphyry. The ore contains—1, various oxides of iron and manganese; 2, carbonate of lead and galena; 3, chloride of silver, in small particles, and mixed mechanically, not chemically, with the other minerals. The proportion of silver has been found to vary between a trace and 2,000 to 3,000 oz. to the ton. The average yield has been from 100 to 150 oz. to the ton, though certain mines have assayed 300 to 400 ounces. The carbonate ores have been found the richest in silver, these being divided into hard and sand carbonates—the former hard gray rocks, having a metallic luster when broken; the latter the same in process of disintegration. The silver ore is found in what is known as a "contact vein," varying from a line to 20 or 30 ft. in thickness. There are no "true fissure" veins in this region. The veins dip at an angle of 15 or 20 ft., the richest deposits of silver occurring generally in depressions. The mines on Fryer hill proved to be perhaps the richest of any up to 1880. They included the Little Pittsburg group, New Discovery, Vulture, Chrysolite, and Carboniferous, all of which became well known, and celebrated for their yield. The number of productive mines which had been worked up the midsummer of 1879 was about 60. Smelting works had been set up which were run by independent companies, and 2 sampling establishments, where the ore was assayed for the purpose of affixing the average as a basis of value. The exceptional character of the settlement of Leadville in the first two years of its history, was, not unreasonably, expected to operate unfavorably on the health of the population. Here was an unusually rapid and extensive accumulation of humanity drawn from almost every portion of the continent, and increasing at the rate of 2,000 souls per month, for which no adequate provision could, at the outset, have been made. Rude and flimsy structures of rough boards were hastily thrown together, into which were crowded as many as they would hold of the miners, adventurers, prospectors, gamblers, and others who had made up the enormous emigration from the east to Leadville. In the city the disregard of the commonest sanitary provisions seemed to invite mortality. There was no drainage; the back lots and alleys were made the receptacle of the city's accumulation of waste and garbage; and irregular hours and the generally unsettled condition of life in a great mining district presented their most threatening aspect. Yet, despite all these disadvantages, and doubtless owing, in the main, to the extreme rarefaction of the atmosphere at such an elevation, the death-rate of Leadville, in a population of 9,000, was only 2 per cent, and one-fourth of this resulted from violence. But the constant accessions of population soon brought about a better condition in the structure of the city. Land within the limits increased in value so that lots which sold for $200 and $300, at the beginning of the settlement, increased in value to ten times those figures. Well-built stores and residences were erected, churches were built, 3 daily newspapers were established, and Leadville became a city of business importance, well policed, and comparatively orderly. The completion of the railroad to this point not only afforded facilities for passenger transportation at reasonable rates—thus increasing immigration and settlement—but accomplished a most important improvement in the mining industry by rendering it practicable to ship low-grade ores at a profit. The development of mining claims, while resulting in the production of a vast amount of ore, which brought handsome returns, and made it practicable for fortunate companies to pay large dividends, was followed by the usual speculative fever. Companies were formed with enormous capital (on paper), their stock being sold in the eastern markets at one-tenth or one-twentieth their par value. In many instances the mining properties represented by such stock were never worked; in others, the dividends were paid out of the capital, and the stock "watered" to an enormous amount. Stocks which sold readily in the spring and summer of 1879 at $18 and $20 per share, went down to a few cents, or vanished altogether from the list. Mining exchanges were established in New York and Boston, the most of the business being done in the former city, and the larger number of the companies representing the Leadville mines having their offices there. The number of Leadville companies reported in Jan., 1881, was 12, representing $72,000,000, the par value of most of the stocks being $10, though some were held at $20, and $100 per share was the par value in at least one instance. The mining-stock market witnessed a serious decline in values at the close of the year 1880, the result of over-speculation and want of confidence. Some of the Leadville mines which had been the most successfully worked gave out; others were badly managed and sunk under financial embarrassment. During the year a serious strike of miners in Leadville, necessitating armed interference on the part of the authorities in the interest of the public peace, served still further to disturb the successful progress of the speculative interests of that section. The effervescence of a wide-spread popular excitement which had lasted for nearly three years had subsided, and the Leadville mining industry was gradually settling to a basis of industrial certainty, firmly established on the unquestionable and remarkable mineral resources of the district. The output of ore of

the Leadville mines during 1880, according to the smelters' returns, amounted to 238,000 tons, producing bullion valued at $15,287,936, or an average yield of $61.68 per ton. See *Supp.*, page 897.

LEAF. See LEAVES, *ante*.

LEAF-CUTTER BEE, a name given to certain species of *solitary bees* (see BEE) of the genera *megachile* and *osmia*, in consequence of their habit of lining their nests with portions of leaves, or of the petals of flowers, which they cut out for this purpose with the mandibles. *Megachile centuncularis*, a common British species, uses the leaves—not the petals—of roses, fitting the pieces together so as to form one thimble-shaped cell within another, in a long cylindrical burrow, the bottom of each cell containing an egg and a little pollen paste. The structure of these nests is very nice and curious.

LEAF-INSECT, or WALKING-LEAF (*phyllium*), a very remarkable genus of orthopterous insects, of the family *phasmidæ* (q.v.), natives of tropical countries, having wings extremely like leaves, not only in color, but in the way in which they are ribbed and veined. The joints of the legs are also expanded in a leaf-like manner. These insects spend their lives among leaves, move slowly, and would be much exposed to every enemy, did not their leaf-like appearance preserve them from observation.

LEAF-ROLLERS, a family (*tortricidæ*) of small nocturnal lepidopterous insects (moths) which in the larva state roll themselves within the leaves of plants, fastening them with silken threads. They are generally less than an inch in breadth across the expanded wings, having naked antennæ. The fore wings are usually marked with spots and bands, but the hind wings are without ornament. These insects are very injurious to vegetation. The genera and species are very numerous.

LEAGUE (from the Lat. *leuca*), a measure of length of great antiquity. It was used by the Romans, who derived it from the Gauls, and estimated it as equivalent to 1500 Roman paces, or 1.376 modern English miles. The league was introduced into England by the Normans, probably before the battle of Hastings (1066), and had been by this time lengthened to 2 English m. of that time, or $2\frac{9}{10}$ modern English miles. At the present day, the league is a nautical measure, and signifies the 20th part of a degree—i.e., 3 geographical miles, or 3.456 statute miles. The French and other nations use the same nautical league, but the former nation had (until the introduction of the metrical system) two land-measures of the same name, the legal posting-league = 2.42 Eng. miles, and the league of 25 to the degree, which is = 2.76 statute English miles.

LEAGUE, the term generally employed in the 16th and 17th centuries to designate a political alliance or coalition. The most famous leagues were those of Cambray, Schmalkald, Nürnberg, etc. But the name has a peculiar importance in the history of France, as applied to the opposition organized by the duke of Guise (q.v.) to the granting of the free exercise of their religion and political rights to the Huguenots. This league, known as the holy league (*Sainte Ligue*), was formed at Péronne, in 1576, for the maintenance of the Roman Catholic religion in its predominance; but the object of the Guises was rather to exclude the Protestant princes of the blood from the succession to the throne. For an account of the civil war that ensued, see HENRY III., HENRY IV., and GUISE.—See Mignet, *Histoire de la Ligue* (5 vols., Par. 1829).

LEAGUE, ACHÆAN. See ACHAIA, *ante*.

LEAGUE, ANTI-CORN LAW. See ANTI-CORN LAW LEAGUE, *ante*.

LEAKE, a co. in central Mississippi, intersected by Pearl river and its affluents; about 600 sq.m.; pop. '80, 13,147; surface undulating and covered extensively with forests; chief productions, cotton, corn, and pork; assessed value, real and personal property, $692,044. Capital, Carthage.

LEAKE, Sir JOHN, Admiral; 1656–1720; b. Rotherhithe, Surrey, England; early entered the navy, and distinguished himself under his father in 1673 in the action between sir Edward Spragg and Van Tromp, and afterward, when appointed capt., performed the daring feat of conveying some victualers into Londonderry, thus compelling the enemy to raise the siege. In 1702 he was promoted to the rank of commodore, and, in command of a squadron, destroyed the French settlements at Newfoundland, restoring the island to the English. For these services he was made on his return rear-admiral, and soon afterward vice-admiral of the blue, and knighted. In 1704 he displayed great skill and gallantry in relieving Gibraltar when on the point of being taken by 500 Spaniards who had climbed up the rock. Soon after he was made vice-admiral of the white, and again, in 1705, relieved Gibraltar by destroying the French squadron. In 1706 he relieved Barcelona when besieged by the Spaniards and French and in great extremity, obliging king Philip to raise the siege. In the same year he commanded the fleet which captured Alicant, Carthagena, and the island and city of Majorca. On returning home he received for his services a ring valued at £400 from prince George of Denmark, and £1000 from the queen. In 1707 he was made admiral of the white and commander-in-chief of the fleet. In 1708 he captured Sardinia and Minorca. In 1709 he was made rear-admiral of Great Britain. The same year he was lord of the admiralty, and continued high in office till the death of queen Anne. He was several times a member of parliament for Rochester. On the accession

of George I. he was superseded on a pension of £600 a year, and spent the remainder of his life in retirement, leaving a reputation for great skill, energy, prudence, and success.

LEAKE, William Martin, a lieut.col. in the British army, and a traveler who has contributed much to our knowledge of the ancient and modern geography, history, and antiquities of Greece. He was born in 1777, and died Jan. 6, 1860. With remarkable critical acuteness and soundness of judgment he combined great learning and an admirable power of clear statement. His principal works, containing the matured fruit of his observations and studies, are *Researches in Greece*, etc. (1814); *The Topography of Athens*, etc. (1821); *Journal of a Tour in Asia Minor, with Comparative Remarks on the Ancient and Modern Geography of that Country* (1824); *Travels in the Morea* (1830); *Travels in Northern Greece* (1835); and *Numismatica Hellenica* (1854).

LEAM'ING, Jeremiah, d.d., 1719–1804; b. Middletown, Conn.; graduated at Yale in 1745; ordained to the Episcopal ministry in 1748. He was settled at Newport, R. I., 8 years, at Norwalk, Conn., 21 years, and at Stratford 8 years. In the revolutionary war he was imprisoned for his tory sentiments, and while thus confined contracted a disease of the hip that made him a cripple, on which account he declined in 1783 an election as first bishop of the American Episcopal church. Among his works were a *Defense of the Episcopal-Government of the Church; Evidences of the Truth of Christianity;* and *Dissertations on Various Subjects.* Died at New Haven.

LEAMINGTON, a fashionable watering-place in the county of Warwick, England, and one of the handsomest towns in the country, is beautifully situated on the Leam, a tributary of the Avon, about 2 m. from Warwick. It contains public gardens, a proprietary college erected in 1847 in the Tudor style, and other institutions. In the center of the town is a pump room, a handsome structure. Leamington is wholly of modern growth, having become important only within the present century. Its mineral waters are saline, sulphureous, and chalybeate. The watering season lasts from Oct. till May. The town stands in the center of a fine hunting country, and is much resorted to by lovers of the chase. Pop. in '81, 25,138.

LEANDER. See Hero, *ante.*

LEAPING-FISH, *Salarias tridactylus*, a curious little fish of the blenny family, abounding on the coast of Ceylon, and remarkable for leaving the water to visit every place washed by the surf. By the aid of the pectoral and ventral fins and the gill-covers, it moves across the damp sand, ascends the roots of mangroves, and runs up wet rocks in quest of flies. "These little creatures are so nimble," says sir J. E. Tennent, "that it is almost impossible to lay hold of them, as they scramble to the edge and plunge into the sea on the slightest attempt to molest them." They are 3 or 4 in. long, and of a dark brown color.

LEAP-YEAR, a year of 366 days (see Calendar), so called because it leaps forward a day as compared with an ordinary year. It so happens that the leap-years coincide with the years that are divisible by four, and thus they may be known. Of the years concluding centuries, only every fourth is a leap-year, beginning with 2000, which is divisible by 400, as is also 2400, etc. The term *bissextile*, applied by the Romans to leap-year, arose from their reckoning the 6th before the calends of Mar. (Feb. 24) twice (*bis*), whereas we add a day to the end of the month, making Feb. 29.

LEAR, Tobias, 1762–1816; b. Portsmouth, N. H.; graduated at Harvard in 1783. In 1785 he became the private secretary of Washington; was appointed consul-general at Santa Domingo in 1802, and at Algiers in 1804; in 1805 was appointed commissioner to negotiate peace with Tripoli. Having discharged this duty, he returned to Washington and accepted an appointment as accountant in the war department.

LEAR'CHUS, a Greek sculptor of renown, who is said to have lived in Rhegium, in the s. of Italy, at a period prior to 620 b.c. He is reputed to have made a statue of Jupiter in bronze, which was seen at Sparta, and was regarded as the most ancient work of its kind. It was formed from separate pieces which were adjusted in their proper relative positions by means of hooks and nails, with a view to the possible separation of the parts when necessary.

LEARNED, Ebenezer, about 1728–1801; b. in Mass.; served as capt. in the French war from 1756 to 1763; raised a regiment in Massachusetts at the beginning of the revolutionary war; was raised to the rank of brig.gen. in 1777, and assisted in the relief of fort Schuyler in Aug. of that year. He took a prominent part in the battle of Stillwater, and was at Valley Forge in the winter of 1778–78, and on account of broken health was compelled to resign in the spring. Congress voted him a pension in 1795. Died at Oxford, Mass.

***LEASE** is the contract establishing the relation between landlord and tenant (q.v.). If the term of years is more than three, then it must be by deed under seal in England, or by writing in Scotland, if for more than one year. An improving lease is where the lessee agrees to keep the premises in repair. A building lease is where the tenant intends to build a house on the land. See Building Lease, also Ground-rent.

The granting of leases to those holding land from the owners has been general in Scotland for more than a century. To this is, no doubt, to be ascribed, to a great

extent, the rapid progress which improvements in farming have made in the north within that period. The length of leases in Scotland is commonly nineteen years. Recently, in pastoral farms, where no rotation of crops is required, and no substantial improvement expected, short leases of seven or ten years have come into use. What we have to notice in particular is the common agricultural lease of nineteen years, which forms the great base of rural prosperity. During the currency of this species of lease, the tenant has in a great measure the uncontrolled possession of the land, and this lengthened term enables him to reap the benefits of improvements or money expended. Leases on the Scotch system are now becoming more general both in England and Ireland. No doubt holding land from year to year has wrought well in some parts of England, where large capitals are invested in the land by tenants who have no other security than the good faith and feeling between themselves and landlords. In Scotland, however, the system of leases alone meets the tastes and genius of farming. A lease should be clearly and concisely written, so that the terms may be well understood by both parties, and all disputes at its expiry avoided. The cropping clauses of leases vary with the localities. In the neighborhood of towns the tenant is usually allowed to sell the whole produce, including the straw, but is bound to bring back manure to make up the waste. In inland parts, on the other hand, where the selling of the straw year after year might impoverish the soil, it is customary to restrict tenants from so doing. It is also common to debar tenants from selling turnips. Both these clauses cannot be considered as any hardship to improving tenants. The raising and selling of potatoes off the land should not be restricted. In the best arable districts, tenants are often bound not to take two white crops in succession. This is, perhaps, a good enough rule to be applied to light lands, but in other cases barley might be allowed to be taken after wheat. All farmers should be allowed to grow peas to a certain extent, but not more than the twentieth part of the land under regular cultivation. The cropping clauses should be framed in accordance with the systems prevailing in the neighborhood. Whatever these are, they should be clearly defined. No such clauses as "farming according to the rules of good husbandry" should be allowed, as this is apt to lead to a disagreement in defining what these rules are. The terms of entry are usually Whitsunday and Martinmas, which require very different arrangements in the terms of leases. In drawing up these, the most experienced farmers of their respective districts should be consulted, and the terms framed, as far as possible, to encourage the free application of capital to land, and at the same time to avoid the deterioration of the land at the expiry of the term.

The following are the usual clauses in an agricultural lease, viz.: 1. Landlord lets lands specified for term of years, excluding assignees and sub-tenants. 2. Reserves mines, etc., with power to work them; power to excamb, plant, alter, and make roads, hunt, shoot, and fish, cut and carry away trees, feu part of lands for building purposes, inspect farm, etc. When exercise of reservations causes surface damage, this to be paid for. 3. Clause of warrandice. 4. Assignation to obligation of previous tenant to leave premises in order. 5. Specific details as to additional houses and fences required. 6. Obligation on tenant to pay rent specfied at two terms. 7. To maintain and leave fences in good repair. 8. To insure houses against damage by fire. 9. Cropping clause regulating cultivation of lands, and manner in which they are to be left; and also disposal of waygoing crop, manure, fallow-break, etc. 10. Arbitration clause for settlement of disputes. 11. Obligation to remove at expiration of lease. 12. General obligatory clause. 13. Clause of registration. And 14. Testing clause.

Every lease has its own peculiar details in reference to drainage, houses, and cropping. When a tenant enters without paying for the straw or manure, it is called "steelbow," and he receives no value for these when he leaves. Occasionally rents are paid wholly or in part by the current price of grain, a quantity of grain being fixed, convertible at the average market price of the season, as determined by a jury before the sheriff in a court called the fiars court. In consequence of the preciseness in which Scotch leases are drawn up, disputes are of rare occurrence. It will, of course, be understood that such leases can only be brought into operation where landlords are able and willing to put farms thoroughly in order for the tenant, and where the tenant possesses sufficient capital to work the farm advantageously. See *Supp.*, page 897.

LEASE AND **RELEASE,** a name given to a conveyance of land formerly much used in England, but now superseded by a grant.

LEASEHOLD. A leasehold estate is merely the interest or property which a man has who holds a lease; and he is also sometimes called a leaseholder. A leasehold estate is of much less value than a freehold estate, for a lease must some time or other come to an end, whereas a freehold estate is held by a man and his heirs forever—that is, until he or they choose to part with it. See LANDLORD AND TENANT.

LEASH, in falconry, the thong of leather by which a hawk is held. The word also signifies a line affixed to the collar of a greyhound, and is used in both significations in heraldry.

LEASING-MAKING, in Scotch law, means seditious words, which constituted an offense punishable with death by ancient statutes of 1584 and 1585. The punishment

was afterwards mitigated to fine and imprisonment, or both, at the discretion of the court.

LEATHER consists essentially of the skins of animals chemically altered by the vegetable principle called tannin, or tannic acid (q.v.), so as to arrest that proneness to decompose which is characteristic of soft animal substances. Its invention reaches beyond the dawn of history, and was probably among the earliest germs of civilization; for as the skins of animals would naturally be among the first articles of clothing, any means of preserving them more effectually than by drying would be highly prized. The discovery that bark had this effect was doubtless the result of accident. The principle of its action was unknown up the present century; and the same unvarying method had been employed from the earliest times until the last few years, when the invention of new processes has much facilitated the manufacture.

The skins of all animals used in the production of leather consist chiefly of gelatine, a substance which easily enters into chemical combination with the tannic acid found in the bark of most kinds of of trees, and forms what may be termed an insoluble *tanno-gelatin*. This is the whole theory of tanning, or converting the skins of animals into leather. Formerly, oak-bark was supposed to be the only tanning material of any value; but lately very numerous additions have been made to this branch of economic botany.

In addition to the process of tanning in making leather, there are other modes, one of which is *tawing*, another *dressing in oil*. The following are the skins which form the staple of our leather manufacture: ox, cow, calf and kip, buffalo, horse, sheep, lamb, goat, kid, deer, dog, seal, and hog.

The term *pelt* is applied to all skins before they are converted into leather. When simply made into leather in the state we find in shoe-soles, it is called "rough leather;" but if, in addition, it is submitted to the process called currying, which will be hereafter described, it is termed "dressed leather."

The following trade-terms are in general use: hides or crop-hides, butts and backs, bends, offal, and skins. The complete hide when rounded, with the cheeks, shanks, and belly-pieces, etc., pared off, is called a *butt;* the pieces cut off constitute the *offal;* and *skins* are all the lighter forms of leather, such as sheep, goat, deer, etc.

Besides the ox and cow hides furnished by the home-trade, vast numbers are imported from Montevideo, Buenos Ayres, Russia, and northern Germany, and a very considerable number of dry buffalo-hides are brought from the East Indies. The quantity of all sorts imported into Great Britain in 1881 amounted to 1,475,634 cwt.; and the entire value of the hides and leather (unmanufactured) imported in 1881 was as much as £6,366,639. These returns, however, comprise a considerable number of horse-hides, which are also sent from South America. Calf-skins and kip-skins (that is, the skins of beasts older than calves, but not full-grown oxen) are, when tanned, used chiefly for the upper-leather of boots and shoes.

Sheep and lamb skins are imported (in the wool) in large quantities from Australia and the cape of Good Hope; and tanned, from our East Indian possessions. The latter, with the cape skins, are used for book-binding, furniture, gloves, etc. Lamb-skins are imported also from Italy, Sicily, and Spain, and tawed and dyed for making gloves, in imitation of kid. A great portion of all sorts of lambs and sheep are tawed and used for masons' aprons, sewing harness, plaster-skins, tying up bottles, lining shoes, and other jobbing and inferior purposes.

Deer-skins are dressed by the oil process, and form a great portion of the so-called *shamoy* leather, which derives its name from the chamois of the Alps, from the skin of which it was formerly made.

Dog-skins are tanned or tawed for gloves, and for thin shoes and boots. *Seal-skins* are manufacture into the so-called "patent leather," by varnishing their upper surface. the manufacture of this kind of leather has of late become of great importance to the London, Edinburgh, and Newcastle tanners.

Hog or *pig skins* are imported from Russia and other continental countries, and many are supplied by Scotland; their use is chiefly in the manufacture of saddles for horses, etc.

Walrus and hippopotamus hides are tanned in considerable numbers for the use of cutlers and other workers in steel goods, "buffing-wheels" being made of them, often an inch thick, which are of great importance in giving the polish to metal and horn goods. Lately, belts for driving machinery have successfully been made from them.

Kangaroo-skins of various species are tanned or tawed in Australia, and form a kind of leather in great favor for gentlemen's dress-boots.

The first process in making *tanned sole leather* is to soak the skins or hides in water for a greater or less time, to wash and soften them; they are then laid in heaps for a short time, and afterwards hung in a heated room, by which means a slight putrefactive decomposition is started, and the hair becomes so loose as to be easily detached. This process of "unhairing" is mostly followed in America; but in Great Britain, milk of lime is used for soaking the hide till the hair loosens. Hides or skins intended for dressing purposes, such as shoe, coach, harness, or book-binding, after the hair is taken off by the lime, have to be submitted to a process called "bating," for the purpose of reducing the thickening or swelling occasioned by the introduction of the lime, and for

cleansing the skin from grease and other impurities. This is effected by working the skins in a decoction of pigeons' or dogs' dung and warm water, and no dressing-leather is ever submitted to bark or sumac without undergoing this process.

If the old method of *tanning* is followed, the hides, after unhairing, are placed in the tan-pits, with layers of oak-bark or other tanning materials between them; and when as many layers of hides and bark are arranged as the pit will hold, water is let in, and the hides remain to be acted upon by the tanning material for months, and even in some cases for years, being only occasionally turned. But this primitive process is now rarely carried out; so much improvement has been effected in the tanner's art since its chemical principles were discovered that much less time suffices; and materials are now used which act so much more quickly than oak-bark alone that, even if the old process is used, it is greatly accelerated. The most useful of these materials are catechu and cutch (of which 9,000 tons are annually imported into Great Britain from India and Singapore), gambier (about 1200 tons from Singapore), divi-divi (3,000 tons from Maracaibo, etc.), valonia (the acorns of the Quercus Ægylops, 25,000 tons of which are yearly imported from Turkey), and sumac leaves (16,000 tons, chiefly from Turkey).

The first attempts at improvement in tanning were the method invented by Mr. Spilsbury in 1823, and the improvement on this method by Mr. Drake, of Bedminster, in 1831. The principle consisted in causing the *ooze* or *tan-liquor* to filter through the hides under pressure. For this purpose, in Drake's process, the edges of the hides were sewed up so as to form a bag. The bags being suspended, were filled with cold tan-liquor, which gradually filtered through the pores of the hides, and impregnated them with the tannin. The processes by infiltration, however, have been entirely abandoned for heavy leather, as they have the effect of rendering the leather porous and deficient in firmness.

Various patents for improvements in tanning have been in operation of late years. Herepath & Cox, of Bristol, tied hides to each other to form a long belt, and pressed them between rollers to squeeze out the partially exhausted tan-liquor from the pores, so that a stronger liquor might be absorbed. Messrs. J. & G. Cox, of Gorgie Mills, near Edinburgh, made an improvement on this mode, by attaching the hides to a revolving drum, so that the hides press on each other on the top of the drum, but hang suspended in the tan-liquor from the lower part; and thus, by the hides being alternately in and out of the liquor, the tanning is quickly effected.

After the hides have become thoroughly tanned in the pit by the action of the tannic acid upon their gelatinous substance, and when partly dried (if for "struck" sole-leather), they are operated upon by a two-handled tool with three blunt edges, called a pin, which, by being rubbed with great pressure backwards and forwards on the grain-side of the leather, makes it more and more compact; and this is still further accomplished by submitting the leather to the action of a heavily loaded brass roller.

The tanning of goat-skins (from which our morocco is made), sheep for imitation-morocco, and small calf-skins for book-binding is done by sewing up the skins, and filling the bag with a decoction of sumac in a warm state. They are kept in an active state for twenty-four hours or so, which sufficiently saturates them.

A process has been patented by Mr. Preller, of Bermondsey, within the last few years, by which the heaviest skins are converted into leather in a very short space of time; but the process is tawing rather than tanning, and is used for machinery belts principally.

Tawing consists in dressing the skins with antiseptic materials, so as to preserve them from decay; but by this operation no chemical change is effected in the gelatine of the skins; hence, tawed leather can be used in the manufacture of glue. In tawing, the first process is careful washing, next dressing them with lime, then removing the hair or wool, and lastly, steeping them in some one or more of the various mixtures which are used for converting skins into leather by this method. The method of tawing lamb-skins will give a fair idea of the process, which is, however, much varied, according to the kind of skin and the experience of the worker. Lamb-skins of home-production are generally limed on the flesh-side with cream of lime, which enables the wool to be easily pulled off. Dried lamb-skins are generally submitted to the *heating process*, to get the wool removed. The pelts, after being washed, are rubbed on the convex piece of wood called the *beam;* and when supple, the flesh-side of each skin is thickly besmeared with a cream of lime; and when two are so treated, they are laid with the limed surfaces in contact; and a pile of them being made, they are left for a few days, when they are examined by pulling the hair. If it separates easily, then the lime is washed out, and the hair is removed with the unhairing knife, as in the case of hides, unless it is required to be kept on, as in the case of skins for door-mats, etc. After thorough cleansing, the pelts are steeped for two or three weeks in a pit filled with water and lime, being taken out from time to time, and drained on sloping benches. When removed finally from the lime-pit, the skins are worked with the knife, to render them still more supple, and they are then put into the *branning* mixture. This consists of bran and water, in the proportion of two pounds of bran to a gallon of water. From this mixture, in about two days, they are transferred to another bath, consisting of water, alum, and salt. After the proper amount of working in this mixture, they undergo what is called the *pasting,* if intended to form white leather. The *paste* is a mixture of wheaten-bran and

sometimes flour and the yolks of eggs. They are usually worked in a rotating cylinder with this paste and water, and are found in time to have absorbed the paste, leaving little more than the water. If the skins are not intended to be white, other materials are often used, and much pigeons' and dogs' dung is employed, some large leather-dressers expending as much as £100 per annum upon each of these materials. Lastly, the skins are dried and examined, and, if necessary, the pasting is repeated; if not, they are dipped into pure water and worked or staked by pulling them backwards and forwards on what is called a *stretching* or *softening* iron, and smoothed with a hot smoothing-iron.

Another kind of dressing is by treating the skin with oil. By hard rubbing with cod oil, or by the action of "stocks" after the skin has been properly cleaned with the lime, the oil works into the skin, displaces all the water, and becomes united with the material, rendering its texture peculiarly soft and spongy. Wash-leather or chamois-leather is so prepared, and for this purpose the flesh-halves of split sheep-skins are chiefly used.

Besides *tanning* and *tawing*, many kinds of leather require the currier's art to bring them to the state of completion required for various purposes. The currier receives the newly tanned skins, and finds them harsh to the feel, and rough on the flesh-side. He removes all the roughness by carefully shaving with a peculiar knife. After soaking in clean water, he then scrapes the skin with considerable pressure upon a scraping-tool or *slicker*, and thus removes any irregularities. The moisture is then removed as much as possible, and oil, usually cod oil and tallow, are rubbed over the leather, which is laid aside to dry completely, and as the moisture leaves it, the oil penetrates. When quite dried and saturated with the oil, the skin is rubbed on a board with rounded ridges, by which a peculiar grained appearance is given, and the leather is rendered very pliable. In currying, almost every variety of leather requires some variation in the processes employed, but the currier's object is in all cases to give a suppleness and fine finish to the skins.

Morocco leather, formerly an article of import from the Barbary coast, is now prepared in large quantities in this country from goat-skins; sheep-skins are also used for imitation. It is always dyed on the outer or grain side with some color, and the leather-dresser in finishing gives a peculiar ribbed or a roughly granulated surface to it, by means of engraved boxwood balls which he works over the surface.

Russia leather is much valued for its aromatic odor, which it derives from the peculiar oil of the birch-bark used in tanning it. The fact that this odor repels moths and other insects renders this leather particularly valuable for binding books; a few books in a library, bound in Russia leather, being effective safeguards against insect enemies. It is also said to destroy or prevent the vegetable evil called mildew, to which books are so very liable.

LEATHER (*ante*). By the census of 1880 the number of tanning establishments in the U. S. was 3,105, employing 23,812 hands, and preparing 11,773,171 hides and 19,936,658 skins at a total valuation of $113,348,336. The leading states in this industry were Penn., producing $27,042,068; N. Y., $23,652,366, and Mass., $13,556,721. There were also in the U. S. 2,319 establishments for currying leather, the value of their annual products was $71,351,297; and the leading states were Mass., producing $23,282,775; N. J., $8,727,128, and Penn., $7,852,177. During the fiscal year 1884, the total imports of all kinds of leather were valued at $7,335,116, and of all manufactures of leather, $4,976,948; while the total exports of leather amounted to $7,023,570, and of manufactures, $1,282,209.

LEATHER, Vegetable, is a composition the base of which is supposed to be oxidized oil. It is spread over cotton or other cloth, and is used as a water-proof material for carriage-hoods, seats, gaiters, boots, etc. At present, it is only made by one company, which holds the secret of its manufacture.

LEATHER-CLOTH, or American Leather-Cloth, is a common name for coated or enameled textile fabrics intended to possess some of the good qualities of leather without being so costly. As far back as 1849 a material under this name was invented in America; and many specimens of it were placed in the great exhibition of 1851. In 1855 a factory for making it was established at West Ham, in Essex, and the operations are still continued there on a large scale. Linseed oil is heated in large coppers to a certain high temperature, then removed to cool; then mixed with other ingredients, two of which are turpentine and lampblack. This composition is used as a kind of varnish to be applied to the surface of unbleached cotton. The cotton, woven to various widths and lengths, is calendered to make it smooth, and then passed over a roller; the composition is applied to it, and a peculiar kind of knife scrapes the layer to an equable thickness and a smooth surface. After being dried in a heated oven, the cloth is passed between rollers covered with pumice-dust, to rub the composition smooth. These processes are repeated four or five times. The cloth is next painted three or four times with a kind of enamel paint. Some kinds are grained like morocco leather, by being passed between rollers peculiarly grooved on the surface; others receive a pattern in relief by passing between embossing rollers.

Leather-cloth manufactured by this or some similar process is now largely made in

England. Besides the one at West Ham, there is an extensive factory at Lancaster, and the manufacture has also been tried at Glasgow. The best American made stuff is, however, still preferred by some consumers. Both English and American makes are much used for covering the cheaper articles of furniture, instead of leather or hair-cloth, and for this purpose the better qualities last well. These dearer kinds do not exceed one-eighth of the price of morocco leather, and are also much cheaper than hair-cloth or sheep's-skin. Like floor-cloth, or any other kind of fabric coated with oil-paint, American leather-cloth wears best in apartments not subject to extremes of heat and cold. Several varieties of enameled or painted calico, more or less resembling the original American leather cloth, have at different times been made on a considerable scale, but none have been found so serviceable as the ordinary kind, so that they have speedily gone out of use. There is a cheap kind of enameled cloth, more highly glazed than what is usually made for furniture, much used for covering trunks, making small bags, and the like.

Those kinds of imitation leather which consist essentially of calico or other woven fabric coated with a layer of india-rubber, previously dissolved by some solvent, such as naphtha, and mixed with other materials to give it body, are numerous, and pass under different names; but no real line of distinction can be drawn between them and the almost endless varieties of textile fabrics made waterproof by a thin layer of india-rubber. Few of these retain very long the properties they have when newly made. The vulcanized rubber eventually rots, or at least undergoes some change by which it loses its elasticity, and then it cracks, tears, or peels off.

Leather-cloth made on Seager's patent is in fact leather, not cloth. It consists of leather parings and shavings, reduced to a pulpy mass, and molded to any useful or ornamental forms. Le Jeune's *leather substitute* consists of a cement or mastic of caoutchouc or of gutta-percha on cloth, felt, or leather, pressed by rollers, and then pressed upon a layer of leather. By a peculiar splitting machine, a sheet is produced with an extremely thin layer of leather upon it. Spill's *vegetable leather* is made chiefly of caoutchouc and naphtha, the sheets being thickened to any degree by successive backings of canvas. The material is tough, resists damp, and takes on a polish. Szerelemy's *leather cloth* is made by the application of oily pigments to cloth.

LEATHERWOOD, *Dirca palustris,* a deciduous shrub of 3 to 6 ft. high, with the habit of a miniature tree, a native of North America. It belongs to the natural order *thymeleaceæ.* The bark and wood are exceedingly tough, and in Canada the bark is used for ropes, baskets, etc. The leaves are lanceolate-oblong; the flowers are yellow, and appear before the leaves.

LEATHES, Stanley, b. Ellesborough, England, 1830; educated at Cambridge; was curate in several churches in London; professor of Hebrew in 1863 in King's college, London; minister of St. Philip's, London, in 1869; Boyle lecturer, 1868–70, at Whitehall; Hulsean lecturer at Cambridge in 1873; and Bampton lecturer at Oxford in 1874: a delegate to the evangelical alliance in 1873 in New York, and later a member of the Anglican committee for the revision of the Old Testament. He is the author of a well-known work, *Witness of St. John to Christ,* and of *Foundations of Morality.*

L'EAU QUI COURT. See Knox : co., Neb.

LEAVE and LICENSE, a phrase in English law to denote that leave or permission was given to do some act complained of. It is a common defense in actions of trespass.

LEAVEN, "sour" dough, or dough in which putrefaction has begun, and which, owing to the presence and rapid growth or multiplication of the yeast-plant, quickly communicates its character to fresh dough with which it is mingled, causing the process of fermentation to take place sooner than it otherwise would. The use of leaven in baking dates from a very remote antiquity; the employment of yeast is more recent. See Yeast and Bread.

LEAVENWORTH, a co. in n.e. Kansas, bounded e. in part by the Missouri, and s. by Kansas river; 450 sq.m.; pop., '80, 32,360; intersected by the Kansas Central, the Kansas Pacific, and the Missouri Pacific railroads; surface undulating and diversified with prairies and timber-tracts; soil very fertile; chief productions, corn, oats, hay, pork, and cattte. Valuation of real and personal estate, $23,476,311. Capital, Leavenworth.

LEAVENWORTH, a city of Kansas, United States of America, founded in 1854, on the right bank of the Missouri river, 25 m. above Kansas city. It is a handsome town of broad avenues, has 26 churches, numerous schools, 4 banks, daily and weekly papers, and large mills and factories. It is the head-quarters of the government contractors for trains to Utah, New Mexico, etc. Six lines of railway center here, and the river is crossed by an immense iron bridge. Pop. '70, 17,873.

LEAVENWORTH (*ante*), a city of Kansas and the capital of Leavenworth co., situated upon the w. bank of the Missouri river, 38 m. above Kansas City, and 296 m. below Omaha; lat. 39° 19′ n., lon. 94° 58′ w.; pop. '80, 16,555. It is the e. terminus of the Kansas Central railway, and is on the Leavenworth road, leased as a branch of the Missouri Pacific. The Leavenworth and Northwestern railroad extends hence to Atchison The Leavenworth branch of the Kansas Pacific connects it with Lawrence, and the Kansas City, St. Joseph, and Council Bluffs railroad is on the opposite bank of the river. The place is also one of the termini of the Chicago, Rock Island, and Pacific railroad, which

here crosses the Missouri on a fine new iron bridge, which cost $1,000,000. A stratum of fine limestone which crops out here protects the place from the encroachments of the river, and makes good landing-places. The city is regularly laid out, the streets for the most part crossing each other at right angles, and lighted with gas. It has 27 churches, a court-house, a high-school, a state normal school; a Roman Catholic academy, orphanage, and hospital; 3 national and 2 savings banks, 2 theaters, and numerous manufacturing establishments, including breweries, book-binderies, cigar-factories, machine-shops, flouring-mills, saw-mills, foundries, brick-yards, etc. It has 4 daily, 5 weekly, and 3 monthly newspapers.

LEAVENWORTH, Elias Warner, ll.d., b. Canaan, Columbia co., N. Y., 1803; spent his early years at Great Barrington, Mass., and graduated at Yale in 1824. He studied law for a time in the office of William Cullen Bryant, at Great Barrington, afterwards spent two years in the law-school at Litchfield, Conn., and was admitted to the bar in 1827, removing in the same year to Syracuse, N. Y. Here he practiced his profession for many years, until ill-health forced him to retire. He was twice elected mayor of the city, was a member of the state assembly in 1850 and 1857, president of the board of quarantine commissioners in 1860, and regent of the New York university in 1861. In Mar., 1861, he was appointed by president Lincoln commissioner under the convention with New Granada, and in 1865 was president of the board of commissioners appointed to locate the state asylum for the blind. In the same year he was trustee of the state asylum for idiots, and was twice re-appointed to the same post. He was a member of the constitutional commission of 1872. In 1874 he was elected to congress. In 1873 he published the *Genealogy of the Leavenworth Family in the United States.* He has since held other posts of honor and responsibility.

LEAVENWORTH, Henry, 1783–1834, b. Conn.; entered the profession of law, but enlisted in the army in 1812 as cap. of infantry, was made a maj. in 1813, and commanded his regiment in the battles of Chippewa and Niagara Falls in July, 1814. In the latter engagement he was wounded, and for his gallantry in both he was made lieut.col. and col. by brevet. He was appointed lieut.col. in the regular army in 1818, and afterwards commanded an expedition against the Indians of the upper Missouri river. He was brevetted brig.gen. in 1824, and appointed col. of the 3d infantry in 1825. He was the founder of Fort Leavenworth and other military posts on the western frontier. Died in the Indian territory.

LEAVES, *folia*, are organs of plants, springing from the sides of the stem or branches, generally more or less flat and green, never bearing flowers, and of great use in the vegetable economy, as exposing the sap to air and light on their extensive surfaces. It is usually in the axils (q.v.) of leaves that buds and branches are developed; and with reference to buds and branches, they are never situated otherwise than beneath them, although in the axils of many leaves no development of bud or branch ever takes place. After its full development, a leaf retains its form and size unchanged till its death. As to the duration of their life, leaves exist either for one year—that is, during a year's period of active vegetation—in which case they are called *deciduous* (q.v.), or for more than one year, when they are called *evergreen* (q.v.).

A leaf first appears as a little conical body pushed out from the stem or branch. At first it consists entirely of cellular tissue, continuous with the bark, but vascular tissue afterwards generally appears in it. When fully developed, it usually consists of two parts: an expanded part, called the *blade* or *limb;* and a stalk supporting this part, and called the *leaf-stalk*, or *petiole*, which sometimes assumes the form of a *sheath* of the stem, as in grasses. The leaf-stalk, however, is often wanting, in which case the leaf is called *sessile;* and when the base of the leaf embraces the stem, it is called *amplexicaul.* A leaf which has a leaf-stalk is called *petiolate.* Sessile leaves often extend in wing-like prolongations down the stem, and are then called *decurrent.* They are sometimes *perfoliate*, entirely surrounding the stem with their base, so that it seems to pass through the leaf. Opposite leaves are sometimes combined in this way. Leaves are called *simple* when all their parts are united into one whole by a connected cellular tissue; they are called *compound* when they consist of a number of distinct, completely separated parts, which are called *leaflets.*—As to the place where leaves arise from the stem, they are either *radical* (root-leaves), when they arise from the very base—and many plants have radical leaves only; or *cauline* (stem-leaves), when they arise from the *developed* stem or branches—the radical leaves really arising from the stem; or *floral*, when they arise from the flowering axis.—As to their arrangement on the stem, leaves are *verticillate*, or *whorled*, or *opposite*, or *alternate*, or *scattered.* Opposite leaves are usually placed so that each pair is at right angles to those next above and below. All these modes of arrangement on the stem can be reduced either to the *whorl* or to the *spiral;* whilst by the tearing out of the whorl the spiral arrangement arises, and the whorl by the compression of the spiral, but so that the whorl and the spiral are essentially the same. The number of leaves requisite to form a complete *cycle*, or to encircle the stem, is very constant in the same species. In the common houseleek, the cycle consists of no fewer than 13 leaves, which are grouped together to form the *rosette* of this plant.

Leaves consist either exclusively of cellular tissue, as in mosses, or, more generally, of cells and bundles of spiral vessels, as in the leaves of trees and most other phanerog-

amous plants. The stronger bundles of vessels form *nerves*, externally conspicuous, the finer ramifications of which are called *veins*. In endogenous plants, the nerves of the leaves run mostly in straight lines, and nearly parallel; whereas, in exogenous plants, a net-like ramification of the nerves prevails.

The leaves of phanerogamous plants and ferns are covered with a well-developed separable *epidermis*, which extends over all their parts, and which is provided with numerous small pores—*stomata* (q.v.)—sometimes on one, sometimes on both sides, serving for the absorption and exhalation of gaseous substances. Submerged leaves, however, and the under side of leaves which float on the surface of water, have no stomata, no true epidermis, and no true vascular tissue.

Some plants have no leaves, their functions being performed by the green juicy rind of the stalks, as in *cactaceæ* and some of the genus *euphorbia;* or by the general surface of the thallus (q.v.) in many acrogenous plants.

It is in the leaves of plants that the elaboration of the sap chiefly takes place, and when a tree is deprived of its leaves, no wood is formed until they are again developed. The incessant removal of leaves as they are formed destroys a plant, and this method is sometimes advantageously adopted as to weeds having deep or spreading perennial roots, and otherwise difficult of extirpation.

Leaves exhibit more or less decidedly a periodical alternation in their direction and expansion, generally corresponding with the alternation of day and night. Some leaves exhibit a peculiar irritability under various influences, and those of two or three species of plants, by their closing together, catch and kill insects which alight on them, a thing, however, of which no relation to the vegetable economy is known. See IRRITABILITY IN PLANTS, SLEEP OF PLANTS, and DIONÆA.

The forms of leaves are extremely various. *Simple* leaves vary from a form almost perfectly circular, or even broader than long, to an extreme elongation, as *linear* or *filiform* (thread-like). The breadth of some increases towards the apex, and this is indicated by the terms *obovate*, *obcordate*, etc., and sometimes by the word *inversely* prefixed to the term which describes the form. Simple leaves are either *entire*, or they are more or less deeply *toothed* or serrate; or they are *cut* or *lobed* by divisions extending from the margin towards the base; or the division may extend towards the midrib of the leaf, when the leaf is *pinnatifid*, or *sinuate*, or *runcinate*, etc. Terms similar to those employed to describe simple leaves are applied to the leaflets of compound leaves, but the variety of forms is not nearly so great. Compound leaves exhibit two chief varieties of form, according as the divisions which form the leaflets extend towards the base of the blade, or towards the midrib. Of the former class are *ternate*, *quaternate*, *quinate* leaves, etc.; the latter are called *pinnate* leaves. But the same mode of division may be repeated in the leaflets, and thus a leaf may be *biternate*, or, if again divided, *triternate*, etc., and very many leaves are *bipinnate*, *tripinnate*, etc. When the division is often repeated, the leaf is called *decompound*. A pinnate leaf, terminating in a pair of leaflets, is called *pari-pinnate*, or *abruptly pinnate;* but a pinnate leaf very often terminates in an odd leaflet, and is then called *impari-pinnate*. The blade of a leaf is generally in the same plane with the stalk, but is sometimes at right angles to it, as in *orbicular* and *peltate* leaves.

The *vernation* (q.v.) of leaves, or the manner in which they are folded in bud, is, like the *æstivation* of flowers, very characteristic of different plants and tribes of plants.

Root-leaves are generally larger than *stem-leaves*, but are only present in herbaceous plants, and are generally the first to fade. The upper stem-leaves are generally smaller and less divided than the lower, those nearest the flowers often passing into bracts. By metamorphosis of leaves, all bracts, involucres, etc., are produced, and all the different parts of flowers, as calyx, corolla, stamens, carpels, and therefore even fruits; and the mode of their arrangement relatively to the axis corresponds with that of leaves. All organs formed by metamorphosis of leaves are called *leaf-organs*. See MORPHOLOGY.

Seed-leaves are the cotyledons of the seed, raised above ground after germination, and serving the purposes of leaves to the young plant, although generally very unlike its future leaves. This, however, only takes place in some plants.

LEAVITT, JOSHUA, D.D., 1794–1873; b. in Heath, Franklin co., Mass.; graduated at Yale in 1814; was admitted to the bar in 1819, and practiced for a time in Heath, Mass., and Putney, Vt.; graduated at the Yale divinity school in 1825, and during the next three years was pastor of the Congregational church in Stratford, Conn.; from 1828 to 1831 was editor of the *Sailors' Magazine*. It was at this time that the churches of most of the Protestant denominations in the United States were much agitated upon the subject of revivals of religion, for the promotion of which many pastors adopted what were then called "new measures," such as the employment of "evangelists," the holding of "protracted meetings," "inquiry meetings," etc. The *New York Evangelist* was established to promote revivals and defend the "new measures," and from 1831 to 1837, Dr. Leavitt was its editor. During this period the anti-slavery agitation had its beginnings, and from the first it enlisted the warm support of Dr. Leavitt, who made the *Evangelist* a powerful but discreet agent for its promotion. When the American anti-slavery society was organized in 1833, he accepted its doctrines of the sinfulness of slave-holding and the duty of immediate emancipation, and became one of its most active and

influential members. From 1837 to 1840 he was the editor of the society's weekly organ, *The Emancipator*, and a member of the executive committee. When the abolitionists divided in 1840, he went with the new organization, and thenceforth his anti-slavery efforts were mainly confined to the political arena. He was an active promoter of the "liberty" and the "free soil" parties. In 1848 he became office editor of *The Independent*, retaining a connection therewith to the day of his death. About 1834 he compiled and published *The Christian Lyre*, a work containing the great body of the hymns and tunes chiefly used in the revivals of that day. It had a very wide circulation. He reported and published many of the sermons of Charles G. Finney. He also spent several winters in Washington, for the purpose of observing and reporting the action of congress upon questions relating to slavery, and while thus engaged was in close confidential relations with John Quincy Adams, Joshua R. Giddings, and other opponents of slavery then in congress, by whom his counsel was highly prized. It is understood that shortly before his death he began to write a semi-biographical and semi-historical account of his labors in the anti-slavery cause, and it is to be deeply regretted that he did not live to complete the work.

LEBANON, a co. in s.e. Pennsylvania, taken in 1816 from the counties of Lancaster and Dauphin. It is well watered by the Swatara river and the Little Swatara, with their branches; 288 sq.m.; pop. in '80, 38,476—37,845 Americans. The Third mountain, a spur of the Blue mountain range, forms its n.w. boundary, and the First and Second mountains, the extreme north-west. The Conewago hills lie in the extreme s., and the valley of the Swatara creek, a tributary of Susquehanna river. It is traversed by the Lebanon Valley, the Lebanon and Tremont, and the Schuylkill and Susquehanna railroads. The Union canal, the first in the American colonies, passes near the Swatara river, and Tulpehocken creek. The streams furnish extensive water-power for planing, saw, and flour mills. It includes Lebanon valley, which is bounded on the n.w. by the single, narrow ridges of the Kittaninny mountains, and on the s.e. by the steep, stony hills of South mountain, having undulating slate and limestone lands, abounding in every element of fertility. Indian-corn, wheat, rye, buck-wheat, flax-seed, and quantities of well-flavored fruit are produced; and cattle, sheep, and swine are raised. Strawberries, grapes, and mulberries grow wild, and maize is an original product. It contains rich mines of iron ore, copper, slate, limestone, and marble. Pig iron is the chief article of export. The principal industries are the manufacture of bar iron and castings, both for exportation and home use, clothing, carriages, saddlery and harness, tin, copper, sheet-iron ware, and cigars. Value of manufactures in 1880, inclusive of pig iron, $4,179,082. Seat of justice, Lebanon.

LEBANON, a t. in s.w. Illinois; the seat of McKendree college, a Methodist Episcopal institution, organized (as reported) 1828, chartered 1835, having a library of 10,000 volumes; pop. '80, 1,924. It is in the northern portion of St. Clair co., on the Ohio and Mississippi railroad, 22 m. from St. Louis. It is delightfully situated on Silver creek, which flows s.e., emptying into the Kaskaskia river about 23 m. below, and is much frequented in the hot season by residents of neighboring cities. It has a brisk trade, and is engaged in farming and coal mining. It has 2 newspapers, 8 churches, 1 brewery, 1 distillery, a manufactory of agricultural implements, and 4 hotels. The students of McKendree college publish a semi-monthly magazine.

LEBANON, a t. in Kentucky on a branch of the Louisville and Nashville railroad; pop.'80, 2,054—800 colored. It is the seat of justice of Marion co., and a central point for the transportation of the products of several adjacent counties. It is 5 m. from Rolling fork of Salt river, and 43 m. s.w. of Frankfort, 67 m. s.e. of Louisville, and 58 m. s.w. of Lexington. It has 2 weekly newspapers, 2 national banks, 6 churches, several hotels, and a court-house. It is situated on Hardin's creek, and has one flour-mill. Manufactures of furniture, carriages, sashes and blinds are the principal industries; and there are two distilleries and a tannery. It has excellent public schools. The Lebanon Baptist female college was established there in 1869. The place includes St. Mary's station, the seat of St. Mary's college, a Roman Catholic institution.

LEBANON, a borough in Pennsylvania, on the Union canal, at the junction of the Lebanon Valley and Lebanon and Pine Grove branches of the Philadelphia and Reading railroad. It is the terminus of the Cornwall railroad, which is laid from this point to the Cornwall ore mines, at the distance of 7 m. in a southern direction, comprising three hills of iron ore veined with copper, called, respectively, Grassy, Middle, and Big, with branches of railway to furnaces; pop. '80, 8,778. It is connected with the Schuylkill company coal mines by the Lebanon and Tremont railroad. It is on the Quitopahilla creek, 25 m. from Harrisburg, 28 m. w. of Reading, 26 m. n.e. of Harrisburg, and 86 m. n.w. of Philadelphia. It is a well-built town mostly of brick and stone houses, has good hotels, a library, court-house, and 3 national banks with a capital of $350,000, 2 savings-banks, a state bank, 7 newspapers, including 2 German and 1 English and German. It has 14 churches, a Roman Catholic institution of learning, and excellent public schools. It is the center of an iron mining district, and 6 m. away there is a quarry of gray marble. Its leading industries are the manufacture of iron implements and castings, engines and boilers, carriages, machinery, and railroad cars. It supplies anthracite

coal for 8 large furnaces, and has manufactories of paper, organs, stoves, hollow ware, and bells.

LEBANON, a t. in Tennessee, on a branch of the Nashville, Chattanooga, and St. Louis railway, 30 m. e. of Nashville, and 6 m. s. of the Cumberland river, on a branch of which it is situated; pop.'80, 11,296—917 colored. It has saw-mills, steam flouring mills, and several manufactories of cotton and woolen goods, and brooms. It has 2 national banks, and 7 churches. It is the seat of justice of Wilson co., and has a market-house, a town-hall, and other public halls. It contains a number of educational institutions, including Cumberland university, organized by Cumberland Presbyterians in 1842, embracing, besides the preparatory school, commercial, collegiate, theological, law, and engineering departments, and a library of 6,000 vols. It has also a business and telegraph college, 2 young ladies' seminaries, and a sufficient number of public schools. It has a quarterly magazine published in the interest of education, and a weekly newspaper.

LEBANON, Mount, or Jebel Libnan, the western and higher of two mountain-chains which run through Syria from n. to s. parallel with the coast of the Levant. Its average height is about 7,000 ft., but its loftiest peak, Dahrel-Khotib, in the range called Jebel Makmel, attains an elevation of 10,050 feet. For six months of the year this mountain is covered with snow. The next highest point is Jebel Sunnin, 8,555 feet. The road from Baalbek to Tripoli crosses Lebanon at an elevation of 7,330 feet. From the western side of the range several spurs strike off across the narrow strip of level coast, and project upon the Levant in bold promontories. In the s. are the sources of the Jordan, the most important river that rises in Lebanon; not far from Dahrel-Khotib, those of the Orontes, the next largest stream, which flows northward, and intersects the chain at Antaki (*Antioch*). Lebanon derives its name, not from the snow that whitens its peaks, but from its chalk cliffs. The vegetation of Lebanon is, on the whole, scanty; here and there woods and willow-groves are seen; the lower parts of the mountains, however, are everywhere well watered and cultivated, and the valleys are often covered with orchards, vineyards, olive and mulberry plantations, and cornfields. The habitable districts are mostly in the possession of Maronites (q.v.) and Druses (q.v.). Everywhere the range of Lebanon is wild and solitary; the only sound that falls upon the ear of the traveler is the scream of the eagle. Numerous monasteries offer comfortable accommodation to the weary traveler at the close of almost every day's wanderings. The once famous cedars of Lebanon have almost disappeared; only a solitary grove remains. See Cedar of Lebanon.

Anti-Lebanon, or *Jebel-esh-Sherki*, lies e. of the preceding; the range is less compact, and its average height inferior. The great plain between the two is known as Cœle-Syria (q.v.). Anti-Lebanon terminates southwards in Mt. Hermon, its highest point, which reaches an elevation of 8,376 feet. Its sides are clothed with green poplar-trees, but it has no cedars. On its table-lands are found numerous little lochs or tarns, which are a characteristic feature of this range, and distinguish it from Mt. Lebanon.

LEBANON SPRINGS, a village of Columbia co., N. Y., a favorite summer resort, famous for possessing the only thermal spring in New York and New England, having a temperature of 73°, and discharging 500 gallons per minute. The village is situated 1000 feet above the level of the sea, and is within viewing distance of the Hudson river and Catskill mountains. It is frequented chiefly for recreation, though its waters have a reputation as a remedy for rheumatism, liver-complaint, and cutaneous affections. The surrounding country offers the charms of beautiful and varied scenery, and the drives are numerous and attractive.

LEBAS, Jean-Baptiste-Apollinaire, 1797–1873; a French engineer principally distinguished for having been employed by the French government in 1836 to take down, transport, and erect the Egyptian obelisk presented to France by the viceroy of Egypt. To his skill in inventing or improving machinery required for that colossal work is due the entire success of the removal. The government published an elaborate work, edited and illustrated by Lebas, on the history and appliances of this achievement.

LE BAS, Philippe, 1794–1861; son of Philippe François Joseph, associate of Robespierre and St. Just; an antiquarian and philologist. From 1820 to 1827 he had charge of the education of Louis Napoleon, afterwards emperor. He filled various literary positions from 1829 to 1846, and was considered one of the most erudite of Frenchmen. Notwithstanding his early connection with the education of Napoleon III., he denounced the *coup d'état;* was a brave supporter of republican opinion; and always defended with warmth the revolutionary vigor of his father's acts. His works are numerous, and of grave and solid character.

LEBEDIAN', a district t. of Great Russia, in the government of Tambov, 100 m. w.n.w. of the city of that name, on the Don, in lat. 53° north. It has two annual fairs, the commercial transactions of which realize £700,000. One of the chief articles of sale is horses; and government officers frequent the fairs of Lebedian in order to furnish horses for the cavalry regiments. Pop. '80, 6,010.

LEBEDIN', a t. of Little Russia, in the government of Kharkov, 90 m. n.w. of the town of that name, in lat. 50° 35′ n., long. 34° 30′ east. It was founded in the 17th century. Pop. '80, 17,000, who manufacture girdles and sashes to the value of many thousand rubles. These articles, which are worn by the Russian peasants, are sent for sale to Moscow, and to the fairs of Nijni-Novgorod, Kursk, etc.

LEBLANC, URBAIN, b. 1796; a French veterinary surgeon, who largely advanced veterinary art by the invention of means to practice surgery on animals, especially horses, and by treatises on their diseases, and the treatment of them. He d. 1871.

LEBŒUF, EDMOND, b. at Paris in 1809; educated in the polytechnic school of Paris; a graduate of the artillery school of Metz, and soon after capt. in the army of Africa. In 1854 he was chief of artillery in the Crimea, was made gen. of brigade, and was then charged with the French part of the siege works at Sebastopol. In 1856 he was attached to the Russian embassy; in 1858 made gen. of division; in 1859 commander-in-chief of artillery. At this time he made the experiments with rifled cannon which contributed to the victory of Solferino. In 1864 he was president of the artillery commission. In 1866 he was sent commissioner to Venice to receive from Austria the cession of Venetia to Italy; in 1868 commander of the camp at Chalons; and in 1869 head of the 6th army corps at Toulouse. In Aug. of the same year he became minister of war; resigned with his colleagues Dec. 27; in Jan., 1870, was made marshal of France. In April of that year he was called before a committee of the French legislative assembly to state the condition of the French army, when he said: "We are ready: so ready that the war may last two years without our having need to buy so much as a gaiter button." When the war with Prussia opened in July, Lebœuf was made maj.gen. of the army of the Rhine. The reverses of the French army at the beginning of the war caused a reaction of public opinion against him, and he was charged with incapacity, deprived of his command as maj.gen., and placed under gen. Bazaine. On Aug. 14 he was put in command of the 3d corps, plunged it into sanguinary battles with more desperation than skill, and was, with his corps, a part of the force obliged to surrender after the capitulation of Bazaine. Summoned, in 1871, before the committee to investigate the conduct of the war, he reiterated his belief in the proper condition of the army in the beginning, and gave the most damaging testimony as to the conduct of Bazaine.

LE BRETON FLATS, a suburb of the city of Ottawa, situated on Chaudière and Victoria islands, in the Ottawa river. It is unrivaled for water-power, and contains a foundry, several flour mills, saw and planing-mills, a carding and fulling mill, etc.

LEBRIJA (anc. *Nebrissa-Veneria*), a t. of Spain, in the province of Seville, 34 m. s. by w. from Seville, on an affluent of the Guadalquivir, and on the railway between Seville and Cadiz. It is pleasantly situated on a slight eminence, which overlooks a plain liable to be overflowed by the Guadalquivir and its branches. A large church, originally a mosque, exhibits a strange combination of the Arabic, Roman, and Gothic styles. Lebrija is famous for its oil. There are manufactures of woolen cloth, hempen fabrics, glass, pottery, bricks, tiles, and soap. Pop. 12,000.

LEBRUN, CHARLES, a French painter, b. at Paris, Mar. 22, 1619; studied in the school of Vouet, and afterwards at Rome, under Poussin, for six years, returning to France in 1648. He became principal court-painter to Louis XIV., and died at Paris, Feb. 12, 1690. Lebrun's best works are a series of pictures representing the battles of Alexander, which were felicitously engraved by Gérard Audran. Lebrun belongs to the classical and artificial school, but he is a very favorable specimen of it.

LEBRUN, or LE BRUN, CHARLES FRANÇOIS, Duc de Piacenza (Plaisance), 1739–1824; b. France; joint consul with Napoleon, and, under the first empire, minister of finance and confidential envoy. He began public life as secretary of Maupoeu, president of parliament, was made inspector of crown lands, and by his influence was practically, though not nominally, the head of the cabinet of Louis XV. On the dismissal of the Maupeou ministry Lebrun was in retirement till 1789. At the dawn of the revolution he wrote a pamphlet of rare wisdom, entitled *Voice of the Citizen*, and was sent to the first council of the states-general. Not being an orator, he bore an inconspicuous part in that remarkable body. He was made governor of the department of the Seine and Oise in 1791, and distinguished himself by an orderly and vigorous administration. Twice arrested and imprisoned under the Robespierrean dynasty, he was freed by the Tallien revolution in 1795, and elected deputy to the council of the ancients. In 1799 he was re-elected, acquired a commanding influence in that body, and controlled its financial legislation. After the *coup d'état*, Nov. 12, 1799, by which Napoleon became first consul, Lebrun accepted the position of third consul. Under the empire he was made arch-treasurer and duc de Plaisance. In 1805 he negotiated the union of the Genoese republic with the French empire; on the abolition of the *tribunat* by the emperor he retired to private life; but was called back in 1810, at the age of 71, to govern Holland after the abdication of Louis Bonaparte. There he was retained till the first abdication of the emperor in 1814. On the advent of the Bourbons, his name was struck from the list of peers, but restored in 1819. His French biographers regard him as a remarkable example of a long life of public service unstained by servility, ambition, or

intrigue. Manly in the expression of his opinions, he yielded loyal support to laws and institutions once established, while outspoken in declaring their errors.

LEBRUN, Marie-Louise Elizabeth Vigée, 1755-1842; b. Paris, wife of gen. Lebrun, second duke of Plaisance; remarkable as a portrait painter, and a charming woman. Her father was a painter of talent. Marie took up the art as a child, and studied with J. Vernet. At the age of 20 she was famous. Her portraits of "Comte Orloff," "Souvaloff," the "Comtesse de Brionne," and the "Duchesse d'Orléans" gave her a high place. In 1775 she married Lebrun. It was an unfortunate marriage. Her husband, she afterwards writes, was quite amiable, but terribly addicted to women of low manners and to gambling; so that he wasted not only his own fortune, but her earnings. She lived apart from him, and by her genius and her beauty and refinement of manners, gathered a little court, comprising the highest rank and talent of France, though her apartments were so modest that there were not half chairs enough for her cherished guests. She made more than 20 portraits of "Marie-Antoinette," and was the court artist of her day. She was admitted, after considerable opposition, to *l'Académie* in 1783.

Though in the receipt of large sums of money for her work, her husband seems to have had the talent to coax it away from her for "commercial investments," which brought no returns. At the breaking out of the revolution in 1789 she went to Italy, visited Rome, Naples, Vienna, Berlin, and St. Petersburg, where her fame gave her distinguished receptions. She returned to France in 1802, and soon after visited England; here she made a portrait of "Lord Byron." Napoleon requested her to paint his sister Caroline, wife of Murat, but words let slip by the artist about true and false princesses turned Napoleon against her. She then made a journey to Switzerland, where she made a portrait of "Madame de Stael." On the restoration of Louis XVIII. she was again the painter of the court. Her husband, by whom she had only a daughter, died in 1813, and her daughter, wife of the secretary of the Russian count, Czernitcheff, died in 1818. This remarkable woman, who retained to the last the full possession of her artistic and intellectual faculties, has left most interesting memoirs of her life, under the title of *Souvenirs*, 3 vols. 8vo, Paris, 1835.

LEC'CE, a province in s.e. Italy; 3,293 sq.m.; pop. '72, 493,594. It is in the division of Apulia, and was formerly called Terra d'Otranto. In more ancient times it was itself the division of Calabria, or Messapia. The Apennines cross its entire surface, diagonally, from n.w. to s.e., and it is watered by the Lieto and the Galeso rivers. It has a mild climate, and produces freely corn, cotton, tobacco, wine, and olives; but suffers frequently from excessive drought.

LEC'CE, the chief t. of a province of the same name in southern Italy, 10 m. from the Adriatic, and 25 s.s.e. of Brindisi, had a pop., in 1871, of 21,083. It is the Lupice of the ancient Salentines, the name having become Lycia in the middle ages, and hence Lecce. It contains fine churches and public edifices, the architecture of which is much enhanced by the beauty of the fine white stone found in abundance in the neighborhood, which admits of exquisitely minute cutting. Lecce has a large trade in olive-oil. Pop. of province '81, 554,418; area, 3,292 sq. miles. See Otranto, Terra di.

LEC'CO, a t. of Austrian Italy, province of Como, at the point where the Adda emerges from the Lago di Lecco, a branch of the Lago di Como, 17 m. n.e. of Como; pop. 7,040. It was an important town under the Romans, and is very prosperous. The people are engaged chiefly in the manufacture of iron and copper ware, silk, cotton and woolen stuffs, in which a considerable trade is carried on. A railway extends hence to Milan.

LECH, a river of s. Germany, Tyrol, and Bavaria. It rises in the Vorarlberg, and after flowing n. 140 m. joins the Danube 26 m. n. of Augsburg.

LECHFORD, Thomas, d. about 1645; a London lawyer, who emigrated to Boston in 1638, and was the first to practice the profession in New England. He became dissatisfied with the state of things in the colony, and returned in 1641 to England, where he published *Plaine Dealing, or News from New England's Present Government*, etc., and later, *New England's Advice to Old England*. His *Plaine Dealing* was reprinted, with an introduction and notes, in 1867 by J. Hammond Trumbull. Though conceived in a spirit hostile to New England, it is of considerable historic value.

LECKY, William Edward Hartpole, b. Ireland, 1838; was educated at Trinity college, Dublin, and published his first work, *The Leaders of Public Opinion in Ireland*, anonymously, in 1861. His studies now became directed towards philosophical subjects, and in 1865 the first results of these were made public through the issue of his *History of the Rise and Influence of the Spirit of Rationalism in Europe*, a work which made a marked impression on the literary world, mainly on account of the evidence which it afforded of extraordinary erudition and profound contemplation. This impression was sustained by his subsequent work, *History of European Morals from Augustus to Charlemagne* (1869), though in a less degree, on account of the nature and scope of its subject. Nearly ten years were now employed by Mr. Lecky in studies and investigations preparatory to the publication of his *History of England in the Eighteenth Century*, of which vols. i. and ii. appeared in 1878. The first three of these books were translated into

German by Dr. H. Jolowicz, and the *History of Morals* is used as a text-book in German universities. The *Edinburgh Review* concluded a critical examination of the *History of Rationalism*, "with the conviction that Mr. Leeky is one of the most accomplished writers and one of the most ingenious thinkers of the time." The *London Quarterly*, *British Quarterly*, and *Fraser's* have also thoughtfully reviewed his writings.

LE CLEAR, Thomas, b. Oswego, N. Y., 1818. He was distinguished, at a time when artistie work was rare in this country, for the early exhibition of a talent for portraiture. Against the most unfavoring eireumstanees he subsequently achieved great suecess and a prominent place among American painters. In 1832, while still with his father in London, Canada, he painted portraits, and was engaged in panel-painting on the great steamers of the lakes, which at that time were decorated by the best talent procurable. He afterwards made studies of Indians at Green bay, Wis., and portraits at Elmira and Rochester, N. Y. In 1839 he established himself on Broadway, N. Y., and secured eomplimentary recognition of his picture, "The Reprimand," in its purehase by the art union. From 1844 to 1860 he worked in Buffalo; then returned to New York, where he produced notable works, among whieh are portraits of Daniel S. Dickinson, Millard Fillmore, the artists Gifford, McEntee, and Hubbard, and Edwin Booth as *Hamlet*, besides several imaginative subjeets, such as the "Marble-Players;" "Young America;" and the "Itinerants." He d. 1882.

LE CLERC, Jean, d. 1525; b. Franee. His enthusiasm for religious reform impelled him to tear from the doors of the eathedral of Meaux the plaeard of the pope's bull of indulgences, and to replaee it with a plaeard calling the pope the antichrist, ete. He was arrested, tried in Paris, condemned to be whipped with thongs for four days, branded upon the forehead, and banished. Returned to Metz he seemed not cured of his opinion by the vigorous medicine of the court at Paris, and returned to the charge by breaking the Catholic images earried in a procession. He eseaped, but afterwards proudly acknowledged the aet; was eondemned to the stake; and was punished before being burned by the cutting off of his right hand, then his nose, then otherwise maimed, and his neck encircled with three rings of red-hot iron; all of whieh proeeedings failed to convert him from his errors, and he died singing and shouting praises to God.

LECLERC, Sebastien, 1637–1714; b. Metz, France; son of a jeweler. He commenced engraving when 12 years old, and at 23 had mastered all studies to fit him to be a civil engineer. Visiting Lebrun, painter, in Paris in 1665, he was induced to devote himself to engraving in that city. He afterwards executed a large number of engravings that made him famous. Louis XIV. gave him apartments at Gobelin and made him his eabinet engraver; and the Freneh aeademy made him professor of perspective. His works are remarkable for the boldness of their exeeution and the perfection of their finish.

LECLERC, Victor Emmanuel, 1772–1802; b. Franee; was a volunteer in the cavalry service during the revolution; made capt. at the siege of Toulon, where he attracted the attention of young Bonaparte, and was made bearer to Paris of the news of the taking of Toulon. One of the famous army of Italy in Bonaparte's first campaign, he was made gen. of brigade after the battle of St. George, and soon afterward married the famous Pauline Bonaparte. After the return of Bonaparte from Egypt, Leelere assisted him in Paris to suppress the legislative government, and to assume the title of first consul. Afterwards he commanded a division of the army of the Rhine. In 1801 he was sent to subdue Portugal. The same year he was made capt.gen. of St. Domingo, and required to re-establish slavery there. With a large fleet and 30,000 Freneh troops he met the negro forees under Toussaint L'Ouverture, and after being defeated in a pitehed battle, got possession of the great negro leader by treachery, and sent him in chains to France. Leclerc died of yellow fever, and his remains were taken baek to France. His eareer is one which derives its sole interest from conneetion with the first Napoleon's successes and crimes, with which he was thoroughly identified, and a favorite with the tyrant beeause a willing tool of his ambition.

LECOCQ, Charles, b. France, 1830; a composer of light and brilliant music. In 1852 he won the second prize of the *Conservatoire*, and in 1857 beeame widely known as a composer. The following are among his compositions: *Ondines au Champagne; Mysotis; Cabaret de Ramponneau; l'Amour et son Carquois; Fleur de Thé; Jumeau de Bergaume;* and *Fille de Madame Angot;* also *La Marjolaine*, and *Le Petit Duc.*

LECOMP'TON, once the capital of Kansas, United States of America, is situated on Kansas river, 60 m. from its mouth at Kansas City. It has greatly declined in population and importance. In 1880 the pop. was only 1,004.

LECOMPTON CONSTITUTION, a frame of government for the state of Kansas, adopted by an illegally constituted convention held at Leeompton in 1857, and sought to be imposed by illegal and violent measures upon the people of that state. The members of the legislature which called the eonvention were chosen not by the voters of Kansas, but mainly by intruders from the state of Missouri, who went thither on eleetion day, and, being countenanced by the agents of the national government, took possession of the polls and elected men known to be in favor of the establishment of slavery in

the territory. A very large majority of the voters of the territory were known to be opposed to slavery, and if the national government had protected them from the incursion of hordes of men from Missouri, or even if its officers had not actually encouraged the intruders in their unlawful work, there would have been no difficulty in organizing Kansas as a free state. The Lecompton constitution, framed by a body of men having no more legal authority than a mob, declared the right of slaveholders in Kansas to their slaves to be inviolable, prohibited the legislature from passing any act of emancipation, and forbade any amendment of the instrument before 1864. The scheme for submitting this constitution to the people of Kansas, though denounced as a fraud by Robert J. Walker, the governor shortly before appointed, was approved by president Buchanan. The constitution itself was not submitted even in form to the people; they were only to be allowed to vote upon the question whether they would have the "constitution with slavery" or the "constitution with no slavery," the instrument being so worded that in either case it would virtually fasten slavery upon the rising state. The constitution was thus formally submitted to the electors Dec. 21, 1857. For its adoption "with slavery" the vote returned was 6,226, more than half of which was from the counties along the Missouri border, whose whole number of voters by the census did not exceed 1000. For the constitution "with no slavery" 569 votes were returned, but the great body of the free-state men declined to vote at all, regarding the election as a fraud and a farce. The legally constituted territorial legislature submitted the same instrument to the consideration of the people of Kansas, Jan. 4, 1858, and the result was a majority of 10,226 votes against it. The question was carried to congress, which body ordered still another election to be held Aug. 3, in which the fraudulent constitution was again rejected by 10,000 majority. This virtually ended the struggle for the establishment of slavery in Kansas. An anti-slavery constitution was framed and adopted with all the necessary legal formalities in 1859, and the state was admitted to the union Jan. 29, 1861.

LE CONTE, John, son of Lewis, b. in Georgia, 1818, and was prepared for college by A. H. Stephens; graduated at Franklin college, Athens, now university of Georgia, in 1838. Graduated in medicine in 1841 at the college of physicians and surgeons, New York city, and commenced the practice of medicine at Savannah, Ga., in 1842. In 1846 became professor of natural philosophy and chemistry in Franklin college, and resigned in 1855 to become lecturer on chemistry in the college of physicians and surgeons, New York. Became professor of natural and mechanical philosophy in South Carolina college, at Columbia in that state. In 1869 was appointed professor of physics and industrial mechanics in the university of California, at Oakland, and in 1875 became president of the institution. He is a member of the principal scientific associations, and has contributed many important papers on scientific subjects.

LE CONTE, John Eaton, brother to Lewis, an American engineer and naturalist; b. N. J., 1784; d. at Philadelphia, 1860. Entered U. S. army in 1813 as engineer, and made many surveys and plans for fortifications till 1831, when he was retired with rank of maj. Paid much attention to botany and zoology. Published *Monographs of N. American Species of Utricularia, Gratiola, and Ruellia; Observations of the N. American Species of Viola*, and *Descriptions of the Species of N. American Tortoises*, in the *Annals of the N. Y. Lyceum of Nat. History; A Monography of N. American Histeroides*, in the *Boston Journal of Natural History*, and *Descriptions of Three New Species of Arvicola, with Remarks upon other N. American Rodents*, in the proceedings of the academy of natural sciences of Philadelphia.

LE CONTE, John Lawrence, an American naturalist, son of maj. John E.; b. in N. Y., 1825: graduated at college of physicians and surgeons, 1846. Made scientific excursions in western states when a student, and afterwards traveled extensively in North and Central America, transmitting the results of his observations to scientific societies, principally upon the coleoptera of North America, upon which subject he is eminent authority. He entered the army as surgeon of volunteers in 1862, and was promoted to medical inspector in the regular army, retaining the position till the end of the war. In 1873 he was elected president of the American association for the advancement of science. He d. 1883.

LE CONTE, Joseph, son of Lewis; b. in Georgia in 1823; was prepared for college by A. H. Stephens; graduated at Franklin college, Ga., in 1841; M.D. New York college of physicians and surgeons in 1845. Commenced practice of medicine at Macon, Ga., in 1848. In 1850 went to Cambridge, Mass., to study natural sciences under Agassiz, and accompanied that savant on an exploring expedition to Florida in 1851. After graduating at Lawrence scientific school he became professor of natural sciences in Oglethorpe university. He was made professor of natural history in Franklin college, and was professor of chemistry and geology in the university of South Carolina from 1856 to 1869. Since 1869 he has occupied the chair of geology and natural history in the university of California. Among his papers are: *On the Agency of the Gulf Stream in the Formation of the Peninsula and Keys of Florida; On the Correlation of Vital Force with Physical and Chemical Forces; On Some of the Ancient Glaciers of the Sierras; On the Structure and Age of the Cascade Mountains;* and *On the Relations of Religion to Science.*

LE CONTÉ, Lewis; b. in N. J. in 1782; d. in Georgia, 1838, from septic poison. He was of Huguenot descent, ancestors coming to New Rochelle, N. Y.; graduated at Columbia college, N. Y., in 1799; studied medicine with the celebrated Dr. David Hosack; settled in Georgia, taking care of his father's estate and establishing a botanical garden, where he cultivated rare bulbous plants obtained from the cape of Good Hope. He devoted considerable time to mathematics and zoology, as well as botany.

LECOUVREUR, Adrienne, 1690–1730; b. Champagne, France; one of the most gifted and versatile of all the women who have made the French stage alike celebrated for the exquisite truth of nature in its impersonations, and the life of love and passion, romance and tragedy, of which its votaries became the exemplars. She was daughter of a hatter, who went to Paris to better his trade. Located near the theater of the *Comedie-Française*, Adrienne, then a grown girl, a laundress, found her genius throbbing for expression in the drama. She organized a little private theater among the neighbors, which was so successful as to draw from the comedians of the Royal theater a complaint against it as an unauthorized theater. The amateur performances thus closed, Adrienne was taken by a kind prior to the actor Legrand, who was struck with her talent and beauty, and gave her lessons in elocution. She secured an engagement in Strasburg, and after some years of provincial successes was called at the age of 27 to enter the *Comedie-Française*. She at once assumed the first place among French actors. Her force of character and high spirit, her noble beauty—intellectual, passionate, but not gross—gave all her personations the stamp of her individuality. She became the lion of Paris, and for 13 years her real life, like her acting, was a stormy elysium, filled with the loves and gallantries of the most eminent men of her time. Voltaire ranked himself among her lovers by some of the tenderest lines *in memoriam* that ever came from his pen. She was poisoned in Paris by some mysterious means employed by a rival of noble family and ignoble character, Françoise de Lorraine, duchesse de Bouillon.

LE CREUZOT. See Creuzot, Le, *ante*.

LEC'TERN, or Lettern (Lat. *lectorium* or *lectricium*), a reading-desk or stand, properly movable, from which the Scripture *lessons* (*lectiones*), which form portion of the various church-services, are chanted or read. The lectern is of very ancient use, of various forms, and of different materials. It is found both in Roman Catholic churches and in the cathedrals and college-chapels of the church of England. The most ancient lecterns are of wood, a beautiful example of which is that of Ramsey church, Huntingdonshire (about 1450); but they were frequently also made of brass, and sometimes in the form of an eagle (the symbol of St. John the evangelist), the outspread wings of which form the frame supporting the volume.—In some parts of the e. of Scotland the precentor's desk in the Presbyterian churches is called the *lettran*.

LEC'TIONARY (Lat. *lectionarium*), one of the service-books of the mediæval church, so called because it contained the lessons (*lectiones*) of the church-service. Of these there are two which deserve special notice. The first is the so-called "Roman lectionary," which contained the epistles and gospels of the Roman missal, and sometimes all the lessons of all the various services in use in the Roman church, in which case it was named the *plenarium*. The most ancient form of the Roman lectionary was called "comes" or "liber comitis." Its compilation was attributed to St. Jerome, and it appears certain that it belongs in substance, although not in form or in details, to that age. The collection was revised and remodeled in the 8th century. The second of the ancient lectionaries is that known as the Gallican lectionary, which was published by Mabillon from a MS. of the monastery of Luxeuil, and which is believed to represent the rite of the ancient Gallican church, chiefly because one of the few saints' offices which it contains is that of the peculiarly French saint, Geneviève. It is interesting as showing that the Gallican liturgy had three lessons, and not two, as in the Roman missal. Unfortunately, Mabillon's MS. of this highly interesting relic of ancient Gaulish Christianity is imperfect, and no other has since been discovered.

LECTISTURNIUM, a sacrificial ceremony observed by the Greeks and Romans on occasions of extraordinary solemnity, when the statues of the gods were placed in a reclining posture on couches, and a feast was spread on tables before them. The ceremony, according to Livy, was first observed in the year of Rome 354, on account of a destructive murrain among cattle. At first a distinction was made between the gods and goddesses, as at the *Epulum Jovis* held in the capitol, where the statue of Jupiter was laid in a reclining attitude, while those of Minerva and Juno were set on chairs. Afterwards this distinction seems to have been neglected, as may be inferred from a representation on the carved handle of a Roman lamp engraved by Bartoli.

LECTOURE, a t. of France, in the second arrondissement of the department of Gers, on the river Gers, 20 m. n. of Auch; pop. 2,963. It is on the summit of a steep, isolated rock, and contains a college, a hospital on the site of the old castle, a handsome Gothic church built by the English, a town-hall, an old episcopal palace purchased by marshal Lannes, a native of the town, and presented by his widow to the corporation, now used for the residence of the mayor and for the courts of justice. In front of this is a statue of the marshal in white marble. Lectoure is surrounded by several fine

promenades. It is an ancient place. It manufactures coarse woolen cloths, and has an active trade in cattle, grain, wine, and brandy.

LECTURES—LECTURESHIPS. In the time of Charles I. the people were accustomed to send to the pulpit requests for prayers in behalf of their friends in the army of Essex. These became so numerous that there was not time to attend to them. Several London ministers therefore agreed to set apart a morning hour for this purpose, devoting the time to prayer and exhortation. After the war it became a casuistical lecture, and was continued till the restoration of Charles II. These sermons were afterwards published in several volumes quarto under the title of the *Morning Exercises.* Archbishop Tillotson and other eminent preachers were the authors. For a month these lectures were given every morning. Most of them were delivered at Cripplegate church, some at St. Giles's, and a volume against popery in Southwark. The time for the lecture has been exchanged for the evening.—The merchants' lectures is the title of a lectureship instituted in London in Pinner's hall in 1672 by the Presbyterians and Independents, or Congregationalists, to show their essential agreement among themselves, and to support the doctrines of the reformation against popery, Socinianism, and infidelity. The most learned and popular ministers were chosen as lecturers, as Dr. Bates, Dr. Manton, Dr. Owen, Mr. Baxter, Messrs. Collins, Jenkins, Mead, Alsop, Howe, Cole, and others. This lectureship was sustained by some of the principal merchants and tradesmen of the city. Owing to a misunderstanding, the Presbyterians removed to Salter's hall, the Independents remaining at Pinner's hall, and each body decided to select the lecturers from its own denomination. The monthly lectures are delivered monthly by the Congregational ministers of London in their chapels in rotation. They form a connected course of one or more years. In 1827 a volume of these lectures on the evidences of revelation was published.—The Congregational lectures are a series of annual lectures delivered in London by Congregational ministers of Great Britain on theological subjects.—The Dudleian lectures, founded by Paul Dudley, a lawyer, 1675–1751, at Harvard college, for the defense of Christianity, were delivered until very recent years.—The Lyman Beecher lectureship on preaching, at Yale college, was founded by Henry W. Sage of Brooklyn. The first course was delivered by the rev. Henry Ward Beecher in 1872, who was followed by John Hall, D.D., Phillips Brooks, D.D., bishop Matthew Simpson, and Howard Crosby, D.D.—The Ely lectures at Union theological seminary, New York, were founded by Zebulon Ely. The first course was delivered by the rev. Albert Barnes, followed by president McCosh, prof. Andrew P. Peabody, principal Dawson of Canada, and R. S. Storrs, D.D.—The Bohlen lectures were established in Philadelphia in 1878 at the church of the Holy Trinity. Lectures have been given by bishop Huntington, Phillips Brooks, D.D., and dean Howson.—Hibbert lectures, established in London in 1878 for the presentation of subjects pertaining to advanced thought. In this course lectures have been delivered by Max Muller, Ernest Renan, and L. Page Renouf.—The Stone lectures, established by Levi P. Stone, is a series of lectures in Princeton theological seminary. Lectures have been given by William M. Taylor, D.D., R. S. Storrs, D.D., and prof. Flint of Scotland.—See BAMPTON, BOYLE, and HULSEAN LECTURES, *ante.*

LECYTHIDA'CEÆ, a natural order of exogenous plants, or suborder of *myrtaceæ,* the distinguishing characteristic being that the fruit is a large woody capsule, with a number of cells, which in some species remains closed, and in some opens with a lid. All the known species, about 40, are natives of the hottest parts of South America. All are large trees. They have alternate leaves, and large showy flowers, solitary, or in racemes. The stamens are numerous, and a portion of them sometimes connected into a kind of petal-like hood. Brazil nuts (q.v.) and sapucaia nuts (q.v) are the *seeds* of trees of this order. The cannon-ball tree (q.v.) belongs to it. The capsules of some species are known as *monkey-pots.* Monkeys are very fond of the seeds.

LE'DA, in Grecian mythology, the wife of the Spartan king Tyndareus, whom Jupiter visited one night in the disguise of a swan. She became by the god the mother of Castor and Pollux, and after her death was raised to a divinity under the name of Nemesis. The story has supplied a theme for many works of art.

LED'BURY, a small t. of England, in the county of Hereford, is situated 14 m. e.s.e. of the city of that name, on the Hereford and Gloucester canal. Glove-making is the principal branch of industry. Pop. 3,000.

LEDERER, JOHN; time and place of birth unknown, but is supposed to have been a German; an early explorer of the mountain regions of Virginia. He wrote in Latin an account of his travels, translated and published in 1672 by sir William Talbot, Bart., under the title of *Discoveries of John Lederer in three several Marches from Virginia to the West of Carolina and other parts of the Continent, begun in Mar.,* 1669, *and ended in Sept.,* 1670. He was driven out of Virginia by ill-treatment from the populace, and baron Talbot induced him to write this book for his own vindication.

LEDGER-LINES. See LEGER-LINES, *ante.*

LEDOCHOW'SKI, MIECISLAS HALKA, Count de, cardinal, b. 1822 at Ledochow, Galicia; studied theology at Warsaw, Vienna, and Rome; was domestic prelate and prothonotary apostolic to Pius IX. Entering the papal diplomatic service, he was auditor of the nunciature successively at Madrid, Lisbon, Rio de Janeiro, and Santiago de

Chili, nuncio at Brussels, and archbishop of Thebes in 1861. By request of the king of Prussia he was appointed archbishop of Gnesen and Posen in 1866, becoming thereby primate *ex officio* of Poland. In 1873 he took the lead in protesting against the new Prussian ecclesiastical laws, by which the people of the dioceses and parishes were allowed to choose their own bishops and priests. He refused to appear before the courts to justify his action, in consequence of which his property was taken in payment of fines, and he was imprisoned at Ostrowa. He was appointed cardinal Mar. 15, 1875.

LEDRU-ROLLIN, Alexandre Auguste, a noted French democrat, b. in Paris, 1808; studied for the bar, to which he was admitted in 1830. He was counsel for the defense in most of the prosecutions of opposition journals during the reign of Louis Philippe, and obtained a great reputation among the lower orders. In 1841 he was elected deputy by the department of Sarthe, and became a prominent member of the extreme left. In 1846 he published an *Appel aux Travailleurs*, in which he declared "universal suffrage" to be the only panacea for the miseries of the working-classes. He was also an ardent promoter of the reform-meetings that preceded the crash of 1848. On the outbreak of the revolution, he advocated the formation of a provisional government, and when this was carried out was intrusted with the portfolio of the interior. He was afterwards one of the five in whose hands the national assembly placed the interim government. In this high position he showed great want of perception, firmness, and energy. In consequence of the insurrection of June, 1848, he ceased to hold office, and then sought to recover (what he had lost by accepting office) his influence with the extreme democrats. He partially succeeded, and even ventured on a candidature for the presidency, but obtained only 370,119 votes. The unsuccessful *émeute* of June, 1849, put an end to Ledru-Rollin's political rôle. He fled to England, and in less than a year politely published a work against the land which had given him an asylum, *De la Décadence de l'Angleterre.* For the next 20 years he lived alternately in London and Brussels. His name was excepted from the amnesties of 1860 and 1869; but in 1870, a decree having been published permitting him, he returned to France. In Feb., 1871, he was returned to the national assembly, but at once resigned. He died in 1874.

LE DUM, a genus of plants, of the natural order *ericeæ*, sub-order *rhodoreæ*, consisting of small evergreen shrubs, with comparatively large flowers, of which the corolla is cut into 5 deep petal-like segments. The species are natives of Europe and North America; some of them are common to both. The leaves of *L. latifolium* are said to be used in Labrador as a substitute for tea, whence it is sometimes called Labrador Tea. Sir John Franklin and his party, in the arctic expedition of 1819–22, used in the same way the *ledum palustre*, which produced a beverage with a smell resembling rhubarb, yet they found it refreshing. The leaves of both these shrubs possess narcotic properties, and render beer heady. They are regarded as useful in agues, dysentery, and diarrhea.

LEDYARD, John, 1751–89; b. Conn.; prepared himself for missionary labors, and was for a time among the Indians of the Six Nations. In 1776 he went to London, and accompanied capt. Cook on his third and last voyage. He was at this time a corporal of marines in the British service, and in 1782, when off the American coast, deserted, and endeavored to organize a n.w. trading expedition. In this he failed, and two years later again went to London, whence he undertook a tour of exploration in the extreme n. of Europe. Starting from Stockholm on foot, he traversed the coast-line of the gulf of Bothnia, and continued his course to Siberia. He was arrested at Irkutsk by orders of the Russian government, and expelled from the country with orders not to return under penalty of death. This harsh action appears to have been taken on the suspicion that he was a spy or on account of jealousy. He reached London with difficulty in a most forlorn condition, where he was kindly received, and by sir Joseph Banks and some other persons sent on an expedition of exploration to Africa. He reached Cairo, but was there attacked by a fit of sickness which put an end to his life. Ledyard's diary of his voyage with capt. Cook was published in an abridged form in Hartford, Conn., 1787. Others of his manuscripts were issued in London among the memoirs of the society for encouraging discoveries in central Africa. He possessed a restless temperament and an adventurous disposition, but his travels do not appear to have resulted in any considerable service to mankind. It is remarkable that he should have left his native country at the outbreak of the revolution, should have entered the naval service of Great Britain in a branch of it devoted to the comparatively peaceful duty of exploration, and should have deserted this service immediately after the close of the war between the two countries.

LEDYARD, William, 1738–81; b. at Groton, Conn.; commander of fort Griswold, near New London, in 1781, defending the post with great courage against an overwhelming British force until it was taken by storm, when, with more than 100 of his soldiers, he was massacred by the enemy. A monument commemorates the event.

LEE, or Leeward, a nautical term for the quarter *to* which the wind is directed, as distinguished from *windward,* or the part *whence* the wind comes.

LEE, a co. in s.e. Alabama, having the Chattahochee river for its e. boundary, drained by affluents of the Tallapoosa; about 610 sq.m.; pop. '80, 27,373—27,285 of American birth, 15,056 colored. It is intersected by 3 branches of the Western railroad of Alabama: the Selma, the West Point, and the Columbus. Its county seat is the terminus of the Savannah and Memphis railroad, and the East Alabama and Cincinnati. Its surface is uneven, with densely wooded hills and wide fertile plains. Its tillable lands are adapted to the cultivation of cotton, sweet potatoes, rice, sugar-cane, fruit, and the products of the dairy. It has fine pasturage for the raising of live stock. It produced in '70, 3,509 lbs. of honey. Number of farms in '80, 2,381, including some of 1,000 acres and over. Cash value of farms in '80, $1,559,494. Seat of justice, Opelika.

LEE, a co. in n.e. Arkansas, formed in 1873 out of parts of Monroe, St. Francis, and Phillips counties, and has the Mississippi for its eastern border; 1000 sq. miles. It is watered by the Languille, Blackfish, and St. Francis rivers, flowing through it from n. to s., and emptying into the Mississippi. It has a vast area of alluvial soil adjacent to the river banks, susceptible of cultivation when not subject to overflow. The climate resembles that of Louisiana in its humidity and forwardness of vegetation in the spring, and is said to be adapted to the cultivation of the vine and the silk-worm. A large extent of unsettled country is covered with a heavy growth of beech, denoting a rich soil, and there are groves of elm, hickory, and oak. Cotton is the staple article of cultivation; other products are fine maize, sweet potatoes, and the vegetables generally of Mississippi and Louisiana. Seat of justice, Marianna. Pop. '80, 13,288.

LEE, a co. in s.w. Georgia, having the Flint river for its e. boundary, is watered by two of its affluents, and intersected centrally by the Smithville and Albany line of the Southwestern railroad; 350 sq.m.; pop. '80, 10,577—10,566 of American birth, 8,839 colored. Its surface is generally level, and equally divided into plain and forest; its wooded elevations furnishing building timber of pine and oak. The product of its tillable lands is grain of all kinds, cotton, sweet potatoes, and sugar-cane. Some attention is paid to vine culture. Cash value of farms in '80, $685,024, numbering 715, including 19 of 1000 acres and over. Seat of justice, Starkville.

LEE, a co. in n. Illinois, watered by the Rock river crossing the n.w. corner, and the Green river and Big Bureau creek rising in the county and flowing southward. The Chicago and Northwestern railroad traverses the n. portion, and forms a junction at Dixon with the Rockford and Rock Island and the Illinois Central railroads; 728 sq.m.; pop. '80, 27,494—22,347 of American birth. The country along Rock river is undulating, and partially covered with dense underbrush and scattering timber; the rest of the county spreads into broad, level prairies, inclining to be low and wet, but affording good grazing, pasture, and meadow farms. Stock raising is a remunerative business. Every kind of timber that prevails in Illinois may be found in the groves; and miles of hedge-fencing of the osage orange are planted every spring. In the central portion some Galena limestone is quarried. Indian corn, wheat, oats, flax, and sweet potatoes are the staple products. Total value of all farm productions, including stock, in '70, $3,001,570. The principal industries are the manufacture of agricultural implements, carriages, dressed flax, iron castings, and woolen goods. Value of manufactures in '80, $1,681,349. Seat of justice, Dixon.

LEE, a co. in s.e. Iowa, organized in 1837, has for its eastern boundary line the Mississippi river, on the n.e. the Skunk river, and on the s.e. the Des Moines, which empties into the Mississippi, at its southern extremity. It is traversed in the southern section by the Des Moines Valley railroad, and centrally by the Keokuk division of the Chicago, Burlington and Quincy railroad, and the Burlington and South-western; 500 sq.m.; pop. in '80, 34,859—28,930 of American birth. Hickory, walnut, and cottonwood trees grow on the river banks, and a few sycamores; a vast amount of locust has been raised. The surface is a succession of gentle elevations and depressions, with bold bluffs along the streams, and rich bottom-lands unsurpassed for fertility. The soil is a drift deposit, with a deep covering of vegetable mold. Considerable attention is paid to wool-growing, to fruit-culture, and the raising of fine cattle and horses. Beds of bituminous coal, gypsum and limestone for building purposes, appear on the banks of the Des Moines and Skunk rivers. Gypsum is found from 25 to 30 ft. in thickness. The Cardiff giant was manufactured from this deposit. Potters' clay is abundant, furnishing material for extensive potteries. The streams afford many excellent mill-sites. Pure well-water is easily obtained. Valuation of real and personal estate in 1870, $20,000,000. Estimated value of farm productions, including additions to stock, etc., $1,948,977. Value of manufactures, '80, $3,192,058. Seat of justice, Fort Madison.

LEE, a co. in e. Kentucky, watered by the middle, n. and s. forks of the Kentucky river, flowing into it from the n.w., is separated from the county on its eastern border by high ridges of mountains; 250 sq.m.; pop. '80, 4,254. Its surface is mountainous, but well wooded, and its valleys are fertile. Beds of bituminous coal and iron are found in the hilly region, and near the villages. Its productions include live stock, every variety of grain, tobacco, sweet potatoes, sorghum, maple-sugar, dairy products, and flax. It produced, in 1870, 3,118 lbs. of honey. Seat of justice, Beattyville.

LEE, a co. in n.e. Mississippi, intersected by the Mobile and Ohio railroad, is drained by the head waters of the Tombigbee river; 520 sq.m.; pop. '80, 20,461. Its surface is generally level, consisting of fertile plains, covered for long distances with a thick growth of hickory, elm, and oak, diversified by the tulip-tree and magnolia. Its soil, which has a substratum of limestone, is very productive, and adapted to the raising of live stock and every variety of grain, tobacco, cotton, sugar-cane, sweet potatoes, dairy products, and the vine. It produced, in 1870, 3,159 lbs. of honey. Cash value of farms in 1870, $1,463,074, numbering 1970, including one of more than 1000 acres. Seat of justice, Tusselo.

LEE: co., Tex. See page 897.

LEE, a co. in s.w. Virginia, having for its s. boundary part of the state lines of Tennessee and North Carolina, and for its w. and n. the Cumberland mountains, separating it from Kentucky, about 450 sq.m.; pop. '80, 15,116—15,110 of American birth, 1005 colored. It is drained by Powell's river, rising in the county which bounds it on the n., and flowing s.w. through it into e. Tennessee. It is bounded on the e. by a range of mountains, through which is a natural tunnel 400 ft. in length. Stone mountain occupies part of the central portion, and the intervening valleys are very fertile, having a formation of limestone, and being well wooded with hickory, oak, ash, maple, and pine. Its agricultural productions include the raising of grain, sweet potatoes, sorghum, maple-sugar, and live stock. It produced, in 1870, 26,535 lbs. of honey. Cash value of farms in 1870, numbering 930, $2,184,205. It employs capital in flour-mills, tobacco-factories, and manufactories of woolen goods. Its mountains abound in coal, iron ore, limestone, sandstone, and saltpeter. Seat of justice, Jonesville.

LEE, a t. in w. Massachusetts, incorporated in 1777, among the Berkshire hills, in the co. of Berkshire, on the Housatonic river; pop. '80, 3,939. It is divided into East Lee, South Lee, and Lee Center; the two latter having stations on the Housatonic railroad. It is 110 m. from Boston, 115 m. from New York, 99 m. n. of Bridgeport, Conn., 11 m. s. of Pittsfield, Mass., and 38 m. s.e. of Albany. It has a national bank, a weekly newspaper, 8 churches, several hotels, a public library, and superior public schools. There are a number of woolen mills, but the principal industry is the manufacture of paper, employing 25 mills. It is celebrated for its ledges of fine, white marble, which has been extensively quarried to supply building material for exportation. This stone was used in the extension of the capitol at Washington, and in the erection of the Roman Catholic cathedral in New York. It is near the center of a district much resorted to in summer by urban residents, and which is noted for its delightful scenery and ancient air of respectability.

LEE, the name of a distinguished Virginian family. Their ancestor, RICHARD LEE, emigrated with a numerous household to America, in the reign of king Charles I., and settled in the country lying between the Rappahannock and Potomac rivers. He was a bold royalist, and during the protectorate of Cromwell was mainly instrumental in inducing the colony of Virginia to assume a semi-independent attitude.—RICHARD HENRY LEE, great-grandson of the preceding, and the most illustrious member of the family, was born at Stratford, in Virginia, Jan. 20, 1732. He was educated first at home, and afterwards in England. He did not come prominently before his countrymen till after the British parliament had passed (1764) the act declaring its right to tax the colonies, and also the stamp act (1765), when he immediately became the center of an active opposition among the colonists, associated himself with Patrick Henry (q.v.), and drew up most of the "resolutions" of the period. He was sent as a delegate from Virginia to the first American congress, which met at Philadelphia (Sept. 5, 1774), and at once became a leader in the assembly. He wrote most of those addresses to the king, the people of England, and the colonies, which compelled the great Chatham to admit that "for solidity of reasoning, force of sagacity, and wisdom of conclusion, under such complication of circumstances, no nation or body of men can stand in preference to the general congress at Philadelphia." When war between the mother-country and the colonies became inevitable, Lee was placed on the committees charged with preparing the munitions of war, and with devising all other means of offering a vigorous resistance to the British government. His labors at this time were enormous. On June 7, 1776, Lee made the most celebrated (and important) of all his speeches, when introducing before the congress of Philadelphia a measure declaring the "united colonies" to be "free and independent states," and "absolved from all allegiance to the British crown." During the war of independence, he was—in spite of ill-health—one of the most active of the patriotic party, chiefly, however, as a civilian. In 1784 he was elected president of congress, and when the federal constitution was established he entered the senate for Virginia. Towards the close of his career he became a decided federalist, although originally he had viewed that system of government with great suspicion, as tending towards a despotic centralization of power. In 1792 he retired from public affairs, and died in his native state, June 19, 1794. His *Life and Correspondence* was published by his great-grandson, R. H. Lee (2 vols., Philadelphia, 1825).—LEE, ARTHUR, youngest brother of the preceding, was born in Virginia, Dec. 20, 1740. He was educated at Eton, then studied medicine at Edinburgh, and after traveling on the continent for some time, returned to America, and started as a physician. Circumstances, however, soon drew him into the field of politics; he returned to England, advocated the

rights of the colonies in the English newspapers, and in 1776 took up his residence at Paris, as the secret agent of the American congress. In this capacity he was busily employed during the whole struggle, and conducted his business on the continent greatly to the advantage of the colonists. He died Dec. 12, 1792. Lee, like his brother, was an admirable scholar and writer, enjoyed the friendship of some of the most eminent men of his time—Burke, Wyndham, sir William Jones, the abbé Raynal, and the duke de Rochefoucauld. See *Life and Correspondence*, by R. H. Lee (2 vols., Boston, 1829).—LEE, HENRY, a distinguished American general, whose father was cousin of the preceeding, was born in Virginia, Jan. 29, 1756. He was one of the most daring, vigilant, and successful cavalry officers on the side of the colonists. "Lee's legion" was probably the most effective and courageous body of troops raised in America. In the famous retreat of Greene before lord Cornwallis, it formed the rear-guard, the post of honor, and covered itself with glory. At the battles of Guildford court-house and Eutaw, at the sieges of forts Watson, Motte, and Granby and Augusta, and at the storming of fort Grierson, Lee particularly signalized himself. After the war, he was sent to congress as a delegate from Virginia, advocated the adoption of a federal constitution, and in 1792 was chosen governor of Virginia. In 1809 he published a valuable work, entitled *Memoirs of the War in the Southern Department of the United States.* He died at Cumberland island, Ga., Mar. 25, 1816.—LEE, ROBERT E., gen. and commander-in-chief of the army of the confederate states of America, was a son of the preceding, and was born in Virginia about 1810. He was educated at the military academy of West Point, entered the army of the United States, served as capt. of engineers under gen. Scott in the war with Mexico, was raised to the rank of lieut.col., and brevetted col. for distinguished services. He was employed in the office of the commander-in-chief at Washington when Virginia seceded from the union, April, 1861, when he resigned his commission, and was appointed commander-in-chief of the forces of Virginia. When that state entered the confederacy, he was appointed to its highest military rank of gen., and though not the senior, was selected by president Davis as commander-in-chief. In July, 1862, he defended Richmond against the federal army under gen. McClellan, and after six days of sanguinary battles, drove him to the shelter of his gun-boats. Marching n., he defeated gen. Pope, Aug. 29, in the second battle of Manassas. Crossing the Potomac into Maryland, with a force of 40,000, he was met at Antietam by gen. McClellan with 80,000, and after a bloody but indecisive conflict, Sept. 17, recrossed the Potomac, and took a position at Fredericksburg, on the Rappahannock, where, Dec. 13, he was attacked by gen. Burnside, whose army he defeated with great slaughter. Gen. Hooker, the successor of generals McClellan, Pope, and Burnside, whom Lee had successively defeated, crossed the Rappahannock, May 1, 1863, and was attacked by gen. Lee on the 2d and 3d, routed with heavy loss, and compelled to escape in the night across the river. He afterwards carried the war into the northern states; but finally, being overpowered, he surrendered to gen. Grant. After the war he was appointed governor of Lexington college. He died Oct. 12, 1870, leaving a character extolled for integrity and piety. Lee married the adopted granddaughter and heiress of Washington, by whom he had five sons. See Lee's *Life and Campaigns,* by his nephew, Ed. Lee Childe (1874).

LEE, ALFRED, D.D., a bishop of the Protestant Episcopal church; b. at Cambridge, Mass., Sept. 9, 1807; graduated at Harvard in 1827; admitted to the bar in 1830, and practiced for three years in Norwich, Conn.; after a course of study in the general theological seminary in New York, was ordained deacon in 1837 and priest in 1838; was rector of Calvary church, Rockdale, Del., 1838–41, when he was consecrated bishop of Delaware and became rector of St. Andrew's in Wilmington. He has published *Life of St. Peter; Life of St. John; Treatise on Baptism; Memoir of Susan Allibone;* and *Harbinger of Christ.*

LEE, ANN. See SHAKERS, *ante.*

LEE, CHARLES, 1731–82; b. Cheshire, England. He entered the British army at 11 years of age; was in Braddock's expedition, and wounded at Ticonderoga in 1758. He also served for a time in Portugal, but certain infelicities of temper hindered his advancement, and he never rose higher in the British service than a half-pay lieutenant. As a "soldier of fortune" he was more suceessful, having attained the position of aid-de-camp to the king of Poland and a maj.gen. In the Russian service against the Turks he became notorious chiefly as a duelist. In 1773 he emigrated to America, purchased an estate in Berkeley co., Va., and became an ardent whig. In 1775 he became maj.gen. of the continental army, took part in the defense of Charleston, and in 1776 was taken prisoner at Basking Ridge, N. J. It is now believed that, while in confinement, he made treasonable proposals to the enemy. In 1778 he was released by exchange, and in the battle of Monmouth his insubordination nearly lost the day. He was court-martialed and suspended from command for a year. Soon afterwards he was wounded in a duel by col. John Laurens, who challenged him for language disrespectful to Washington. After this he addressed a disrespectful letter to congress, and was punished by dismissal from the service. Died in Philadelphia.

LEE, CHARLES ALFRED, 1801–72; b. Salisbury, Conn.; graduated at Williams college, and in 1825 at the Berkshire medical college at Pittsfield, Mass.; settled in New

York, and was one of the founders of the Northern dispensary. He aided in founding the medical college of the New York university, and the Geneva medical college, in which and in many other medical institutions he was professor, chiefly of materia medica and obstetrics. He edited for several years the *New York Journal of Medicine*, and published several medical works. He edited the American edition of Copland's *Dictionary of Practical Medicine*. His medical works and contributions to medical periodicals are numerous.

LEE, Eliza Buckminster, 1792–1864; b. N. H.; daughter of Joseph Buckminster, D.D., a clergyman in Portsmouth, and sister of Joseph Stevens Buckminster, an eminent clergyman and scholar. Under their supervision she acquired a superior classical education, and fondness for literary pursuits. She wrote the memoirs of her father and brother, published in 1849 and 1851, giving such clear insight into the higher New England character, that it was called by Thomas Carlyle a most valuable work. She married Mr. Thomas Lee, and passed her life in Boston and vicinity. She published, in addition to translations from B. Auerbach and other German authors, *Sketches of a New England Village*, (1837), a life of Richter (1842), and *Naomi, or Boston Two Hundred Years Ago* (1848).

LEE, Ezra, 1749–1821; b. Conn.; is remembered for a dangerous feat which he performed during the revolutionary war. The British war-vessel, the *Eagle*, was lying in the New York harbor, and it became necessary to make an effort to dislodge her from her position. Lee volunteered to fasten to her side one of David Bushnell's machines designed for blowing up vessels from under water. This machine was made to carry the operator and 150 lbs. of powder. The *Eagle* was a 64-gun ship, thickly sheathed with copper, and the attempt to fasten the infernal machine to her side was unsuccessful. Lee, however, performed his part of the duty faithfully, remaining under water for several hours, and on his return was warmly congratulated by Gen. Washington. He also fought bravely at Monmouth and in other battles.

LEE, Francis Lightfoot, 1734–97; son of Thomas; b. at Stratford, Westmoreland co., Va., Oct. 14, 1734; received an English and classical education from private tutors; was a member of the house of burgesses 1765–72, and of the continental congress 1775–79. He was one of the signers of the declaration of independence, often presided in committees of the whole, and was a member of other important committees of the congress. When the terms of peace with England were under consideration in 1783, he insisted most strenuously upon securing the right to the navigation of the Mississippi and to the Newfoundland fisheries. He took a prominent part in framing the articles of confederation which preceded the present constitution of the United States. He was a warm personal friend and supporter of Washington. After his retirement from congress in 1779, he served for a brief time in the senate of Virginia, but with this exception led a life of retirement.

LEE, Frederic Richard, R.A., an English landscape painter, b. at Barnstaple, in Devonshire, at the close of last century (1798), and first exhibited at the royal academy in 1824. He became an A.R.A. in 1834, and an R.A. in 1838. L. was one of the most thoroughly national painters of his day, the characteristic scenery of his native country, its quiet river-banks, its parks, its leafy lanes, and its picturesque villages forming the favorite subjects of his pencil. Among his best known and most admired pictures are "The Broken Bridge," "The Mill," "The Watering-place," "The Fisherman's Haunt," "The Silver Pool," "The Plowed Field," "A Devonshire Village," "A Village Green," "Cover Side," "Harvest Field," "A Devonshire Lane," "Penshurst Avenue," "Avenue in Shobrook Park." Among his latest works are "The Bay of Biscay," "Plymouth Breakwater," "View of Gibraltar from the Sands," "Land we Live in" (1867). In 1848 he began to paint a series of works along with S. Cooper, the cattle-painter—the former executing the landscape, and the latter the animals. He d. 1879.

LEE, Hannah F., 1780–1865; b. Mass.; daughter of Dr. Sawyer, an eminent physician of Newburyport. She married George G. Lee, of Boston, and for many years devoted her time to literature. In 1835 she published *Grace Seymour*, a novel, but nearly the whole of the edition was destroyed at the great fire in New York. In 1838, during a season of general financial distress, she published, anonymously, *Three Experiments of Living*, a work treating of the morals of domestic life. It met with remarkable success, and was widely circulated in England and other countries. Thirty editions were published in America. Among her best productions are *Old Painters; Luther and his Times; The Huguenots in France and America; Stories from Life for the Young;* and a *Memoir of Pierre Toussaint.* Her own name appeared for the first time, in connection with her writings, in the appendix to Miss Hannah Adams's memoir of herself, edited by Dr. Joseph Tuckerman.

LEE, Harriet, 1756–1851; b. England; daughter of an actor of respectability, who had been bred to the law, and was careful to educate his daughters. She was the sister of Sophia Lee, with whom she was associated in an academy at Bath, which Sophia had established, called Belvidere House. With her sister she shares the honor of fostering the talents and predicting the eminence of sir Thomas Lawrence. Having secured a competence by the successful management of the school, on the retirement of her

sister she went to reside with her in the vicinity of Tintern Abbey, and afterward at Clifton, where she died, having survived her sister 27 years. She is chiefly celebrated for the joint authorship with her sister, of the *Canterbury Tales* (1797–1805), in 5 vols. A new edition appeared in New York in 1857. There are 12 tales, 8 of which she wrote. In 1821 her German tale, *Kruitzner*, was dramatized by Byron, and published, with due acknowledgment, under the title of *Werner, or The Inheritance.*

LEE, HENRY W., D.D., 1815–74; b. at Hamden, Conn.; ordained deacon in the Episcopal church in 1838; in 1840 became rector of a new church in Springfield, Mass.; in 1848 took charge of St. Luke's church in Rochester, N. Y.; in 1854 was consecrated as bishop of Iowa. Died in Davenport, Iowa.

LEE, JESSE, 1758–1816; b. in Prince George's co., Va.; founder of the Methodist Episcopal church in New England. He joined the Methodist church in 1773, and in 1783 was admitted to the conference as a preacher. In 1787 he visited New England and preached Methodism from Connecticut river to the farthest settlements in Maine. He formed the first Methodist class in New England, at Stratfield, Conn., Sept. 26, 1787, and the first in Boston, July 13, 1792. He was three times chosen chaplain of the U. S. house of representatives, and once of the senate. His principal work was a *History of Methodism in America.*

LEE, JOHN D. See page 897.

LEE, LUTHER, D.D.; b. at Schoharie, N. Y., 1800; became a preacher of the Methodist Episcopal church in 1827, and was one of those who at an early day espoused the anti-slavery cause, incurring thereby the active opposition of the leaders of the denomination. He was among those who, in 1843, withdrew from the Methodist church on account of its attitude upon the slavery question, and organized a new sect called the "Wesleyan Connection." He was president of the first Wesleyan Methodist general conference in 1844, and for several years edited *The True Wesleyan*, the organ of the new denomination. In 1856 he became president of Michigan Union college at Leoni, Mich., and in 1864 was appointed professor in Adrian college, Mich. In 1867 he returned to the Methodist Episcopal church, uniting with the Michigan conference.

LEE, NATHANIEL, 1657–1690; a dramatic poet, b. Hertfordshire, Eng.; educated at Trinity college, Cambridge; was an unsuccessful actor, and subsequently a dramatic author; became insane from habits of dissipation, induced by poverty and a wild imagination, and was confined in a lunatic asylum for four years; in 1688 was released on recovering his reason, and devoted himself to his former pursuits. Three years later he was killed, it is said, in a street night frolic. Of his 11 tragedies, *Theodosius, Alexander the Great, The Rival Queens, Mithridates*, and *Lucius Junius Brutus* were the best; the first two especially were long popular. His genius for tragedy is highly commended by Addison and others, but his metaphors were often extravagant and his style bombastic. He was an imitator of Dryden.

LEE, ROBERT, D.D., 1804–68; b. Tweedmouth, England; educated at the university of St. Andrew; ordained a minister of the Scottish church in 1832; settled at Arbroath in 1833, and at Campsie in 1836. When the church of Scotland was rent in twain, he remained with the Established church, was called to the pastorate of the Old Gray Friars' church in Edinburgh, and took a prominent part in the controversies that ensued. In 1844, to rebut the charge of Erastianism brought against the national church by the seceders, he translated and published with a preface of his own *The Theses of Erastus touching Excommunication.* In 1846 he was appointed regius professor of biblical criticism in the university of Edinburgh, and eight years later published the great work of his life—the fruit of most careful and earnest research—*The Holy Bible, with about* 60,000 *Marginal References and Various Readings, revised and improved.* He was charged by some of his brethren with unsoundness on the subject of eternal punishment, but defended himself with great vigor. He was a member of the deputation that appeared before a committee of parliament in 1858 on the subject of university reform, and had the satisfaction of seeing his suggestions embodied in the act that was finally passed. In 1859 he was arraigned before the presbytery of Edinburgh, and afterwards before the general assembly, upon the charge of introducing in public worship liturgical forms and postures unknown to the church of Scotland; the fact being that he had published a volume of *Prayers for Public Worship* and used the same in his own church. He defended himself with such power and eloquence that his accusers were defeated. In 1860 he published *The Reform of the Church of Scotland in Worship, Government, and Doctrine*, in which he presented his views of liturgical forms, postures, instrumental music, etc., and expressed his earnest desire, by certain changes in these and other particulars, to bring the church into more perfect harmony with the catholic Christian spirit and with the aspirations of the age. The general assembly of 1863–64 took action favorable to his views, and shortly afterwards an organ was erected in Gray Friars' church, a step which marked a new era in the history of the national church of Scotland. In 1865, however, the general assembly reversed its previous action, and the questions at issue were about to be tested in the civil courts, when Dr. Lee was attacked with paralysis, which led to his death, Mar. 12, 1868. His *Life and Remains*, by rev. R. H. Story, appeared in 1870.

LEE, ROBERT EDWARD (*ante*), 1807–70; son of col. Henry Lee of Westmoreland co., Va.; b. June 19, 1807; distinguished by the ability of the service rendered against his country as gen. and commander-in-chief of the armies of the confederate states. He graduated with honor at West Point in 1829; was lieut. in the engineer corps 1829–34; from 1834–37 assistant to chief engineer at Washington; in 1835 assistant in running the boundary line between Ohio and Michigan; 1837–41 superintending engineer of the improvements on the Mississippi and Missouri rivers; made capt. in 1838; in 1842 superintendent of the construction and repair of the defenses of the harbor of New York, assistant engineer at Washington, and member of the board of Atlantic coast defenses.

On the opening of war with Mexico in 1846, Lee was made chief engineer under gen. Scott, was in the battles of Cerro Gordo, Churubusco, and Chepultepec, and wounded in the latter. From 1852–55 he was superintendent of the West Point military academy. On the formation of a new cavalry regiment in 1855 Albert Sidney Johnston was made col., Robert E. Lee lieut.col., Hardee and Thomas majors, Van Dorn and Kirby Smith captains. Thomas is the only one of the number who was true to the national flag when the slave states rose against it. Lee was serving with this regiment in Texas in 1857, when on leave he returned to Washington, where, through his marriage with Mary Custis, great-granddaughter of Martha Custis, wife of Washington, he at that time came into possession of the Arlington estate near Washington. In Oct., 1859, he was ordered to suppress the John Brown raid at Harper's Ferry. From Feb. to Dec., 1860, he commanded the army department of Texas. In Mar., 1861, he was called to Washington by gen. Scott, with whom, during the most of the critical weeks when the secession movement was advancing with tempestuous rapidity at the south, he continued in the most confidential relations as an officer of the United States and a friend. On April 18, while the secession act was pending in the Virginia legislature, he informed gen. Scott that he must resign and go with his state if it seceded. The next day, before Virginia's secession act had passed, he cast the influence of his name into the scale of secession; sent in his resignation to gen. Scott, in a letter filled with grateful recognition of the general's friendship and the kindness of all his superiors in the service throughout his life, but without a word to indicate love of country. He but expresses the deep pain a man may feel at being obliged to take one side or another in a family quarrel—in parting with some dear friends to take side with others. The letter closes with this often quoted expression—"Save in defense of my native state I never again desire to draw my sword." How suicidal and absurd was that state allegiance, time has shown. A letter to his sister, a lady with a higher ideal of patriotism, shows the strange fact that he "recognized no necessity for this state of things." Exerting a wide influence by the native nobility of his character, and devotion to duty, he cast his fortunes with the most violent and determined defenders of human slavery as a divine institution, and became their great military reliance. It is an interesting question as to what mental idiosyncrasy induced a man of Lee's mold to take the step which made him the military hero of the most causeless of wars. The letter written to his sister, on the day when he resigned his commission, shows how little Lee's judgment led him, and how entirely he gave himself up to social considerations and the "states rights" theory. The letter is as follows:

"ARLINGTON, April 20, 1861.

"MY DEAR SISTER: I am grieved at my inability to see you. I have been waiting 'for a more convenient season,' which has brought to many before me deep and lasting regret. Now we are in a state of war which will yield to nothing. The whole South is in a state of revolution, into which Virginia, after a long struggle, has been drawn; and *though I recognize no necessity for this state of things*, and would have foreborne and pleaded to the end for redress of grievances, real or supposed, yet in my own person I had to meet the question *whether I should take part against my native state.* With all my devotion to the union, and the feeling of loyalty and duty of an American citizen, I have not been able to make up my mind to raise my hand against my relatives, my children, my home. I have therefore resigned my commission in the army, and, save in defense of my native state, with the sincere hope that my poor services may never be needed, I hope I may never be called on to draw my sword.

"I know you will blame me, but you must think as kindly of me as you can, and believe that I have endeavored to do what I thought right. To show you the feeling and struggle it has cost me, I send a copy of my letter to gen. Scott, which accompanied my letter of resignation. I have no time for more. May God guard and protect you and yours, and shower upon you every blessing, is the prayer of your devoted brother,

"R. E. LEE."

After Lee had thus crossed the Rubicon to join the southern cause, his wife wrote to a friend: "My husband has wept tears of blood over this terrible war; but he must, as a man and Virginian, share the destiny of his state, which has solemnly pronounced for independence." The key to his betrayal of a patriot's duty lay in his family affection. His wife, from whom he had derived a great estate, exerted a powerful influence over him. The hearts of southern women, like those of the McGregors, beat high for caste and clan. The grandeur of the United States—the great republic of the world—paled before their eyes in the light that shone from the altar of their local prides and loves.

Lee was molded in the heat of his immediate surroundings. The question arises whether he could not have molded them instead—casting his influence with such quick and forcible decision for his *entire* country that he would have carried family and friends by the momentum of his own will, instead of being the reluctant victim of their infatuation.

On April 23, 1861, Lee was at Richmond, receiving an ovation in the legislative hall of Virginia on the occasion of the formal confirmation of his appointment by gov. Letcher to the position of maj.gen. of the forces of the commonwealth of Virginia, which appointment had been made at once on the receipt of news of his resignation from the U. S. army. He remained without any specific command, superintending the fortifications of Richmond with a skill proved by subsequent events. His first operations in the field were against gen. Rosecrans in western Virginia, which were ineffective. He was back to Richmond soon after, and was thence sent to South Carolina to meet the movement of the union forces at Port Royal. The latter part of May, 1862, when McClellan's army was threatening Richmond from the Chickahominy, gen. Joseph E. Johnston was commander-in-chief of the confederate forces. At the battle of the Seven Pines, Johnston being wounded and disabled from command, gen. Lee became the commander of the army of Virginia. Up to this time Lee had never had opportunity to display his ability on the field. He now maneuvered two considerable divisions of his army so as to give the impression that he intended to reinforce Jackson for an attack on Washington. McClellan was completely deceived. Lee suddenly concentrated all his force on the union lines, and in the battles of June 26 and 27 on the Chickahominy, notwithstanding the equal bravery of the army under McClellan, the superior generalship of Lee won a decisive victory. McClellan showed ability in retreat, and conducted the national army to a new line. On the 29th Lee ordered renewed attacks on the retreating army, but so skillfully and secretly had the union army retreated through White Oak swamp, and so resolute and skillful was their defense whenever attacked, that no advantage was gained by Lee's army. McClellan had time to complete his retreat, and on July 2 was intrenched on Malvern Hill. Here a desperate attack was made by Lee to dislodge him, which resulted in a bloody defeat of the rebel forces. Gen. Pope was soon after this put in command of the national armies in Virginia w. of Washington, while gen. McClellan retained position on the James river. Lee, relying on McClellan's inactivity before Richmond, planned to throw his whole available strength against Pope. A series of rapid and unexpected blows fell upon the outer armies under Pope's command, his depot of provisions was captured, and on Aug. 29 and 30, 1862, Pope's main army was signally defeated on the same field of Manassas that witnessed the first defeat of Bull Run. Lee then projected the invasion of Maryland. To use Lee's own words, "the war was thus transferred from the interior to the frontier, and the supplies of rich and productive districts made accessible to our army." On Sept. 7 his entire army was near Frederick City. Lee's tactics were now to draw the union armies after him, and to choose his own ground and time for giving battle. On Sept. 8 he issued an address to the people of Maryland which shows how completely his feelings as a southern man and a slave-holder had dominated his naturally clear judgment. He uses the hackneyed phrases of secession journals in reminding the people of Maryland of their "wrongs"; in alluding to the supremacy of the national power over the local tendency to rebellion as "usurpation." To use his own language, "believing that the people of Maryland possessed a spirit too lofty to submit to such a government, the people of the south have long wished to aid you in throwing off this foreign yoke, to enable you again to enjoy the inalienable rights of freemen, and restore independence and sovereignty to your state." This appeal to personal liberty seems strange in the light of the terrorism towards all adverse opinion which prevailed throughout the confederacy. The proclamation had little effect. It is creditable, however, to gen. Lee that his army, while in Maryland and Pennsylvania, were constrained to avoid all acts not in conformity with civilized warfare.

Gen. McClellan was now re-appointed to the command of the national armies. Sept. 10,1862, Harper's Ferry was captured by the rebels preparatory to the invasion of Pennsylvania. McClellan followed Lee's movements, keeping the body of his army between Lee and Washington. By good fortune coming into possession of Lee's order of march, he forced the latter to turn. The battle of Antietam was the result. With a greatly superior force McClellan succeeded in inflicting such a blow that Lee was forced to abandon the invasion of Pennsylvania, but his superior generalship prevented the former from obtaining any further advantages as Lee retreated southward. On Nov. 7, 1862, McClellan was relieved of command. Lee had evidently relied much in carrying out his plans either offensive or defensive on the extreme caution of the union commander. The appointment of Burnside gave fresh activity to the national campaign. The government decided to renew the attempt on Richmond via Fredericksburg. Both armies were rapidly drawn southward, and on Nov. 20 Lee was gathering his entire army behind the works of Fredericksburg, while Burnside's covered the hills on the north, facing them. On Dec. 11 Burnside began the attack. On the 12th his army had achieved a good position. On the 13th a heroic assault was directed squarely against the fortified hills of Fredericksburg. It was hurled back with terrible loss to the union army. After this battle the army of gen. Lee was not again molested until the campaign

of 1863 opened. Gen. Joseph E. Hooker had been appointed to supersede gen. Burnside, and with a powerful army now declared his intention to make quick work of ousting the confederate army from Fredericksburg. His army was double in numbers that of Lee. On April 29 he had massed six army corps on the n. side of the Rappahannock near Chancellorsville, and should have chosen his own battle-field. The genius of Lee was never more conspicuous than at this time. He took the initiative of attack before Hooker's army was through the "Wilderness," and detaching gen. "Stonewall" Jackson with 21,000 men to make a long circuit to the rear of the right flank of the union army, he occupied gen. Hooker with menaces in front until the evening of the 30th, when Jackson's attack fell like a thunderbolt from a clear sky on the rear of the union army. The next morning the attack was made real in the front, and such was the paralysis of the union commanders, and such the mastery of the time and place for action on the part of Lee, that the great army of Hooker was already defeated. But while the battle on that field was won, Lee received intelligence that the union gen. Sedgwick, at the head of 20,000 troops, had captured Fredericksburg and was now on the hill in his rear. On May 2 he turned his entire force back and attacked but did not dislodge him. But that night Sedgwick, hearing of the discomfiture of Hooker's army, retreated. On May 4 the whole union army was in full retreat, completely outgeneraled at all points.

Lee now organized his army to renew the invasion of Pennsylvania, and on June 3 commenced the advance with an army of 80,000 men. He maneuvered so as to force Hooker with all his army to follow, but at the same time so attenuated his line as to draw the following characteristic letter from president Lincoln to gen. Hooker: "*If the head of Lee's army is at Martinsburg and the tail of it on the plank-road between Fredericksburg and Chancellorsville, the animal must be very slim somewhere; could you not break him?*" But Hooker was evidently afraid of Lee *anywhere*, and with reason. The entire confederate army was transferred to North Virginia. On June 27 it was concentrated near Chambersburg. Gen. Geo. G. Meade now succeeded Hooker in the command of the national army, now n. of Washington. Lee's entire army was now in Pennsylvania. The national army concentrated towards Gettysburg. There gen. Meade brought Lee to battle and chose the field. On July 1 the battle of Gettysburg began by an unexpected collision between the union cavalry and the head of gen. Hill's column moving from Chambersburg towards Gettysburg. It resulted in the repulse of the union advance, and its retirement to the strong position of Cemetery ridge, s. of Gettysburg. The great battle was begun by Lee, July 2, 1863, at 4 p.m., by a tremendous cannonade followed by an impetuous attack on the right of Meade's position. It failed. The next day gen. Meade anticipated the strong attack to be made on his position, by an early retaking of a position gained by the confederates the day before. On the afternoon of the 3d Lee massed 145 cannon and opened the battle for two hours with their thunder, under cover of which his attacking columns of 15,000 men formed. The attack was all that human bravery could make it; but the column melted before the fire that waited for it; and though its head reached and covered the key of the struggle, the main force of the column was annihilated, and the position quickly retaken. Gen. Lee's noble equanimity was conspicuous in this defeat in the manner of his meeting the disorganized remnant of that returning column, infusing them with his own serene confidence. A retreat was now necersary, but it was deliberate and orderly, and gen. Meade, after his victory, found no place in Lee's army for attack. He maneuvered retreating until s. of the Rappahannock, where he endeavored to bring Meade to battle. But the latter was too wary. Then he advanced and endeavored to get to the n. of the national army, but Meade's counter-movements, prompt and rapid, prevented; and the latter in turn advanced, attacked and captured a part of Lee's force, compelling his retreat to the Rapidan. Here Meade planned an attack by surprise, but Lee received timely information, and when Meade's force confronted him, was in a position too strong to be attacked. With a quickness and boldness peculiar to him, he observed that Meade's army was in a weak position to resist an attack, and planned one for the following day. But the next day Meade and his army were no longer there. "They had disappeared like a phantom," writes gen. Lee's biographer. That ended the campaign of Virginia in 1863.

The "immense campaign" of 1864 for the possession of Richmond was now to test and crown the military fame of gen. Lee. Gen. U. S. Grant, victorious thus far on every field, assumed the personal command of the army of the Potomac. For an entire year all the vast resources at his command were used with that rugged grit that regards no loss of life too great which achieves the quick end of war, and with an energy and skill that all the world acknowledges. Yet during that entire year gen. Lee, with an army small in comparison, by his engineering skill, masterly handling, and invariable readiness, aided by his necessary concentration behind strong defenses, held Grant's army at bay, and yielded at last only as a cube of steel may yield to the last great pressure of a colossal vise. The year was filled with the sickening news of sanguinary battles with small results. Grant was hammering at the front of flint that Lee invariably presented. But the weakening force could but show their heroic valor and the resources of their commander. Gen. Lee surrendered the remnant of the army of Virginia on April 9, 1865. His parting address to his remaining troops is a model of sad dignity and grateful recognition of an army's constancy.

In Mar., 1866, gen. Lee was called before the reconstruction committee of congress to give his views. He was very guarded in the expression of opinions, but gave a hearty approval of what is known as president Johnson's policy. His answers to questions put to him were not particularly instructive, often vague and evasive, and have neither the ring of his military incisiveness nor the breadth of a statesman's view. They indicated his intention to give a mournful acquiescence, but not a support, to the re-formed union, and illy concealed the strength of his social aversion to northerners in southern society. But it must be stated that the questions put to him were often needlessly painful for him to answer, and called either for a pronounced adhesion to the lost cause, evasion, or renewed loyalty. His answers indicated the middle course.

In person gen. Lee was of the noblest type of manly beauty: tall, broad-shouldered, erect, with a dignity as impressive as that of Washington, yet not so cold; of habits as pure, more warmly religious; with a calm, confident, kindly manner that no disaster could change. The man was molded for the leader of a nobler cause than that of a confederacy whose corner-stone was human slavery. In the fall of 1865 gen. Lee had accepted the presidency of Washington college in Lexington, Va. Its sedentary duties and the habitual sadness of his proud spirit sapped his health, and a congestion of the brain terminated his life, Oct. 12, 1870.

LEE, Samuel, D.D., an English orientalist and linguist, was b., May 14, 1783, at Longnor, in Shropshire; studied at Queen's college, Cambridge, and took his degree of B.A. in 1817. Two years after he was chosen Arabic professor in the same university, obtained the degree of D.D. from Halle (unsolicited) in 1822 and from Cambridge in 1833, was appointed regius professor of Hebrew in 1831, and died rector of Barley, in Hertfordshire, Dec. 16, 1852. His *Grammar of the Hebrew Language* (2d ed., Lond. 1831), his *Book of Job, translated from the Original Hebrew* (3 vols., Lond. 1837), his *Hebrew, Chaldaic, and English Lexicon* (Lond. 1840), his translation from the Arabic of the Travels of Ibn-Batuta (Lond. 1833), have secured for him a very high reputation. His *Sermons on the Study of the Holy Scriptures* (1830) and *Events and Times of the Visions of Daniel and St. John* (Lond. 1851), are also highly esteemed. He took charge, for the British and foreign Bible society, of editions of the Syriac Old Testament, and of the Syriac New Testament, or Peshito, of the Malay, Persian, and Hindustani Bibles, and of the Psalms in Coptic and Arabic.

LEE, Samuel Philips, Rear-Admiral U.S.N.; b. Va., 1812; entered the navy as midshipman in 1825; was appointed lieut. in 1837, commander in 1855, capt. in 1862, commodore in 1866, and rear-admiral in 1870. He rendered important aid in the capture of New Orleans during the war of the rebellion, being at that time in command of the North Atlantic blockading squadron. In 1864–65 he commanded the Mississippi squadron; 1866–67 he was president of the board to examine volunteer officers for admission to the navy; 1868–70, chief signal officer; commander of the North Atlantic fleet 1870–73, when he retired from active service.

LEE, Sophia, 1750–1824; b. London; daughter of an actor, and at 30 years of age wrote a comedy, *The Chapter of Accidents*, the profits of which enabled her to establish at Bath a seminary for young ladies, which was conducted for many years by her with the aid of her sister Harriet, whose name is inseparably connected with her own in the authorship of *The Canterbury Tales*. Sophia, besides writing most of those tales, was the author of two novels and a tragedy that won a moderate success. Her second comedy was not so fortunate.

LEE, Thomas, b. Va., about the beginning of the 18th c.; the third son of Richard, member of the council, and grandson of Richard, the cavalier founder of the family in America, who took an active part with Berkeley in securing the allegiance of the colony to the Stuarts. Thomas succeeded to the ancestral estate at Stratford, Westmoreland co. He became president of the council, and his commission as governor had just been signed, when he died, in 1750. By his wife Hannah, daughter of col. Philip Ludwell, a member of the council, he had six sons, all of whom were distinguished for public services rendered during the revolutionary war. William, the fifth son, went to England as agent of Virginia, was elected sheriff of London in 1773 and alderman in 1775. He was afterwards diplomatic agent of the United States at the Hague, Vienna, and Berlin. He was recalled in 1779, and died at Green Spring, Va., June 27, 1795.

LEECH, *Hirudo*, a Linnæan genus of *annelida*, of the order *suctoria*, now forming the family *hirudinidæ*, and divided into a number of genera, some of which contain many species. They are mostly inhabitants of fresh waters, although some live among grass, etc., in moist places, and some are marine. They are most common in warm climates. The body is soft, and composed of rings like that of the earth-worm, but not furnished with bristles to aid in progression, as in the earth-worm; instead of which, a sucking disk at each extremity enables the leech to avail itself of its power of elongating and shortening its body, in order to pretty rapid locomotion. The mouth is in the anterior sucking disk. The mouth of many of the species, as of the common medicinal leeches, is admirably adapted not only for killing and eating the minute aquatic animals which constitute their ordinary food, but for making little wounds in the higher animals, when opportunity occurs, through which blood may be sucked. The mouth of the medicinal

leech has three small white hard teeth, minutely serrated along the edges, and curved so as to form little semicircular saws, provided with muscles powerful enough to work them with great effect, and to produce a triradiate wound. The stomach is very large, and is divided into compartments, some of which have large lateral cæca; and a leech which has once gorged itself with blood retains a store for a very long time, little changed, in these receptacles, whilst the digestive process slowly goes on. The circulating system consists of four great pulsating trunks, one dorsal, one ventral, and two lateral, with their branches; there is no heart. The aëration of the blood takes place by numerous small apertures on the ventral surface, leading into respiratory sacs. Leeches are oviparous, and each individual is androgynous. They have small eyes—in the medicinal leeches ten—appearing as black spots near the mouth, and of the most simple structure. Leeches frequently change their skin; and one cause of the great mortality so often experienced among leeches kept for medicinal use is the want of aquatic plants in the vessels containing them, among which to rub themselves for aid in this process, and for getting quit of the slime which their skins exude. Leech *aquaria* in which aquatic plants grow are therefore much more favorable for the health of leeches than the tanks and vessels formerly in use.—The Medicinal Leech (*H. medicinalis* or *sanguisuga officinalis*) is a rare native of Britain; but leech-gathering is the occupation of some poor persons, particularly in Cumberland. Leeches, however, are generally imported from Hamburg and from the s. of Europe. The collecting of leeches gives employment to many persons in some parts of Europe; and leech-gatherers sometimes adopt the simple mode of wading into the water, and seizing the leeches which attach themselves to their bare legs. Pieces of liver, etc., are sometimes used for baits, and a kind of net is sometimes used. Some parts of Europe are supplied from more eastern regions. Slight differences have led to the establishment of two species—one more northern, and one more southern—among those commonly imported into Britain. The more northern—which is that above named—has the belly spotted with black; the more southern (*H. provincialis*, or *sanguisuga medicinalis* or *meridionalis*) has the belly unspotted. Other species are used for the same medicinal purpose of blood-sucking in other parts of the world. The ancients were well acquainted with leeches, but their medicinal use seems to have originated in the middle ages. Many millions of leeches are annually imported into Britain.—The Horse-leech (*hæmopis sanguisorba*) is common in Britain; it is much larger than the medicinal species, but its teeth are comparatively blunt, and it is little of a blood-sucker—notwithstanding the popular notion—and useless for medicinal purposes. It feeds greedily on earth-worms, which issue from the banks of the ponds or sluggish streams which it inhabits.—In many parts of India, as in the warm valleys of the Himalaya, the moist grass swarms with leeches, some of them very small, but very troublesome to cattle and to men who have occasion to walk through the grass. Sir James E. Tennent's description of the land-leech of Ceylon (*hæmadipsa Ceylanica*) is very amusing. In size, it is about an inch in length, and as fine as a common knitting-needle, but capable of distension to the thickness of a quill and a length of nearly 2 inches. It can insinuate itself through the meshes of the finest stocking. It is always ready to assail a passing traveler or quadruped. The coffee-planters are obliged to wear *leech-gaiters* of closely-woven cloth for protection. Horses are driven wild by these pests, "and stamp the ground in fury, to shake them from their fetlocks, to which they hang in bloody tassels." The bare legs of palanquin-bearers are adorned with clusters of them like bunches of grapes. Their numbers have often occasioned the death of men compelled to spend days where they abounded. The moist valleys of Java, Sumatra, Chili, and other tropical countries swarm with land-leeches as much as those of India and Ceylon.

LEECH, John, an English artist, was b. in London in 1817, and received his education at the charter-house. The reputation of this artist is almost entirely associated with *Punch*, to which, beginning about 1840, he contributed thousands of humorous sketches. These sketches are frequently as full of grace as of humor; the drawing is often excellent; and his female faces have a quiet, healthful beauty, which would be attractive in the ball-room, but more attractive by the fireside and with children on the knee. In the *Punch* sketches he has satirized keenly, yet, on the whole, humanely, the vagaries of male and female attire, the precocity of the young, the pomp of paterfamilias, the pride of domestic servants, and the singular relations which sometimes subsist between the parlor and the kitchen. To the future historian of the Victorian era these admirable sketches will be invaluable.

A collection of Leech's best contributions to *Punch* has been published separately, in several series, under the title of *Pictures of Life and Character;* also a volume of *Pencillings from Punch.* He died Nov., 1864. See essay on L. by Dr. John Brown (1882).

LEECHING, or the application of leeches (q.v.), for the purpose of abstracting blood, is preferable to venesection or cupping in many forms of disease; as, for example—1. In local determinations of blood, unattended with febrile symptoms, as in acute inflammation of the female breast, when the pressure of the cupping-glass would cause intense pain. 2. In abdominal inflammations, especially in peritonitis (q.v.), the application of leeches is often preferable to general blood-letting, particularly in patients of a weak constitution. 3. In various organic affections of the heart and lungs, leeching often

affords great relief. Indeed, there are few diseases in which loss of blood is required, excepting erysipelas, in which the application of leeches is objectionable; although it is inexpedient, as compared with venesection, in those cases in which it is desirable to make an immediate impression on the disease (as in peritonitis in robust persons), or where the disease is very rapid and fatal (as in croup).

In the diseases of infants and young children, leeches must be applied with caution. Infants are sometimes completely blanched by the application of one or two leeches, and a case is recorded by Pelletan in which six leeches applied to the chest proved fatal to a child aged 6 years. In applying leeches, the part should be thoroughly cleaned, and the leeches, after being dried by rubbing them in a clean linen cloth, should be placed in an open pill-box or in a wine-glass, and applied to the spot at which it is desired that they should attach themselves. When it is wished to affix a leech to the inside of the mouth, it is placed in a narrow tube called a leech-glass. When the animals will not attach themselves readily, they may sometimes be induced to bite by moistening the part with milk or blood.

The quantity of blood which a leech is capable of drawing may be estimated at an average at about a dram and a half, although occasionally a leech will abstract between 3 and 4 drams; and this quantity does not include that lost after the animal has fallen off, which is frequently, especially in children, very considerable. In order to cause the leech to disgorge the blood, the usual practice is to apply salt to its body.

When the leeches have fallen off, it is usually desirable to promote to some extent the flow of blood from their bites, and this is readily done by the application of warm fomentations or poultices. The bleeding generally stops spontaneously after a short time; if it goes on longer than is desirable, mere exposure to the air, or the application of the fluff of a hat, or of a bit of cobweb, will usually check it, the fibrine of the blood coagulating on the applied filaments, and forming a small clot. If these means fail, a little cone of lint should be inserted into the bite, over which a compress should be laid and a bandage applied; or the bite should be touched with a stick of nitrate of silver (lunar caustic) scraped to a point.

Leeches, when applied to the mouth or interior of the nose, have been occasionally swallowed, and have given rise to very unpleasant symptoms. The best treatment in a case of this kind is to prescribe wine—half a glass, or even a glass, every quarter of an hour—which will speedily destroy the leech. A moderately strong solution of common salt would probably exert a similar fatal action on the animal.

LEECH LAKE, in n. Minnesota, about 7 m. s. of lake Cass. It is nearly 20 m. long and 15 m. broad. It has an elevation of 1330 ft., and discharges its waters by a short outlet into the Mississippi.

LEEDS, a co. in e. Ontario, Canada, having the St. Lawrence river for its s. and s.e. boundary; bounded on the n.w. by Rideau lake, and has other lakes of considerable size; 900 sq.m.; pop. 35,135. Through lake Rideau passes the Rideau canal, connecting Ottawa with Kingston on lake Ontario. The Rideau river takes its rise in the lake, emptying into the Ottawa river. The Cataraqui river also has its source in lake Rideau, emptying into lake Ontario at Kingston. Its surface is uneven. The soil is productive of wheat, oats, potatoes, corn, and rye. Its inhabitants are engaged in farming, manufacturing, and mercantile pursuits. The Brockville and Ottawa branch of the Canada Central railway has its terminus at the county-seat, and its s. and s.e. border is traversed by the Grand Trunk railway. Its capital is employed in foundries and machine-shops, tanneries, manufacture of stoves and white lead, flour and saw mills, and the making of buck and kid mits. Seat of justice, Brockville.

LEEDS, the first t. in Yorkshire and fifth in England in point of population, is a parliamentary and municipal borough, returning three members to the house of commons. It is situated in the n.w. of the West Riding of Yorkshire, in the valley of the Aire, and is the seat of important manufactures, especially of clothing. The woolen trade carried on here exceeds in extent that of any other part of England. It has been estimated that general goods to the annual value of £11,000,000 pass through the warehouses in Leeds. The staple manufactures are superfine broad and coarse narrow cloths, pelisse cloth shawls, blankets, and Scotch camlets. At Holbeck, a suburb of Leeds, there is a flax-mill, the largest of the kind in Europe, which employs upwards of 2,500 hands. About 2,500 hands are employed in the worsted and silk trades. The manufacture of leather is carried on in some of the largest tanneries in the kingdom, and about 50 firms are engaged in making boots and shoes. The iron industries, which have been largely developed, employ about 15,000 persons. The other chief manufactures are those of glass, paper, tobacco, oil, chemicals, and earthenware. There are 34 churches in Leeds, 8 Roman Catholic and about 80 dissenting places of worship. The chief church is St. Peter's, which is in Kirkgate, and was rebuilt in 1838 at a cost of £29,770. It is 180 ft. long by 86 ft. wide; the tower is 139 ft. high, and contains a peal of 13 bells. It is a very noble edifice. The principal windows are of beautiful stained glass. It also contains some fine statues, one of which is erected in memory of those natives of Leeds who fell in the Crimea; the church has a good choir. The most interesting church in the town is St. John's, New Briggate, consecrated by archbishop Neale, A.D. 1634, an almost unique example of a "Laudian" church, and still retaining the original fittings. The

other principal buildings are chiefly of recent erection. The town-hall, completed in 1858, is 250 ft. long, 200 ft. broad, and the tower is 225 ft. high. It covers 5,600 square yards. The great hall is 161 ft. long, 72 ft. wide, and 75 ft. high. It is richly decorated, and contains one of the largest and most powerful organs in Europe, also statues of Edward Baines and Robert Hall, formerly members for the borough. There is also a colossal statue of the queen in the vestibule, and of Wellington in the front of the building. Kirkstall abbey, about 3 m. from Leeds, was founded between 1147 and 1153 by Henry de Lacie for the Cistercian order of monks. It is a fine old ruin, remarkable for its simple grandeur and unity of design. Adel church, about 4 m. from Leeds, is an interesting building, erected 1140. Near it was a Roman station, where several antiquities have been found. The general infirmary was erected in 1868 from designs by sir G. G. Scott, at a cost of £100,000, and contains accommodation for 300 in-patients. The mechanics' institute, erected in 1867, at a cost of £25,000, contains a lecture-hall accommodating 1700 persons. The free library, established in 1870 (under the free libraries act), contains 30,000 volumes. The grammar-school was built in 1859, at a cost of £13,000; it is built in the shape of a cross in the Gothic style, decorated period, and was designed by E. M. Barry, esq. The borough jail is a large castellated building at Armley, admirably adapted for its purpose. The corn exchange, a handsome building of an oval form; the post-office, formerly the court-house, near which is a statue of sir Robert Peel; the Queen's hotel, recently erected by the Midland Railway company; the philosophical hall, built in the Doric order of architecture, and having a fine museum; the Wesleyan training college, in the Gothic style, erected in 1868; Turkish baths (cost £14,000); Beckett's bank, a fine work by sir G. G. Scott, etc. There is also a library of 30,000 volumes, founded by Priestley in 1768. The number of subscribers is limited to 500. Among charitable institutions may be mentioned the dispensary; house of recovery; hospital for women and children; tradesman's benevolent society; industrial school; convalescent home; a handsome new workhouse; the reformatory at Adel, where about 60 juvenile criminals are usefully employed in agricultural and other occupations. Leeds has also a royal exchange, which was opened in 1876, a stock exchange, 2 general markets—one of which is a handsome structure of iron and glass—a cattle-market, colored and white cloth halls, 5 railway stations, 11 banks, 2 theaters, 4 daily and 5 weekly newspapers. Roundhay park, one of the most beautiful demesnes in England, at a distance of 2 m. from Leeds, was bought by the corporation of the town in 1872 at a cost of £140,000, and converted into a recreation-ground for the use of the public. It covers 733 acres, and contains a lake with an area of 33 acres. Pop. in 1871, 259,212; in 1881, about 309,112.

LEEDS, John, 1705–90; b. Talbot co., Md.; served for forty years as clerk of the county and judge of the provincial court; in 1760 was appointed commissioner to supervise the returns of Mason and Dixon of the boundaries of Maryland and Pennsylvania. In 1769 he contributed to the *Philosophical Transactions* a paper on *The Transit of Venus.* He was appointed surveyor-gen. of Maryland, and performed the duties of that office until his death.

LEEK (*allium porrum;* see Allium), a biennial plant, and a native of the s. of Europe; with no proper bulb at the root, but generally a slight increase of the thickness of the stem; a stem about 3 ft. high, leafy at bottom; the leaves about an inch wide; the flowers in a large and very dense terminal globular umbel, which is not bulbiferous. It has been long in cultivation, and some of the varieties exhibit the effects of cultivation in greatly increased size and delicacy. The lower part of the stem, before it has run up into a flower-stalk, blanched by earthing up or other means which also induce it to swell and extend, is much esteemed for culinary purposes. Its flavor is much milder than that of the onion, or any other species of *allium.* The leek has long been an especial favorite of the Welsh; and much attention has of late been paid to its cultivation in some parts of Scotland. It is generally sown in spring, and is used during the following winter. It delights in a rich but light and dry soil. Gardeners often transplant seedling leeks, instead of merely thinning out the original rows; and sometimes make deep holes for them with the dibble, into which they merely throw a little earth to cover the roots, leaving the stem to swell in the open hole.

LEEK, a manufacturing and market-t. of England, in the co. of Stafford, 24 m. n.n.e. of the town of that name. The parish church dates originally from 1180, and the town contains also numerous educational and benevolent institutions. Pop. '81, 12,865, who are employed chiefly in the manufacture of silk goods.

LEELANAW, a co. in central Michigan, surrounded by water on all but its southern border, is bounded on the n. and n.w. by lake Michigan, on the e. by Grand Traverse bay and West bay; 340 sq.m.; pop. '80, 6,253. It is drained by the Platte river, flowing into lake Michigan, and has two large picturesque lakes. Its surface is level, and well supplied with forests of sugar maple, beech, and hemlock. Its leading products are buckwheat, barley, oats, corn, rye, wheat, cattle, sheep, and swine. Its manufactures are not extensive, its fisheries claiming more attention. Seat of justice, Northport.

LEEMANS, Conradus, b. in the province of Gelderland, 1809; studied theology and archæology at the university of Leyden, and in 1835 was appointed first conservator at

the museum of antiquities in that city. He devoted himself successfully to the task of gathering and arranging all the archæological treasures of the city, and in 1839 was appointed director of the museum. At the same time he was commissioned by the governor to found an ethnographical museum, with which Siebold's Japanese collection was incorporated. He wrote historical and critical descriptions of the articles in the museum, especially of those belonging to the department of Egyptian antiquities.

LEER, a t. of Prussia, Hanover, in East Friesland, 32 m. w.n.w. from Oldenburg, on the right bank of the Leda, near its junction with the Ems. There are manufactures of linen, hosiery, etc.; breweries and distilleries; and ship-building yards. A railway, opened in 1856, runs northwards to Emden, and southwards to Papenburg, Osnabrück, and Münster. Pop. '80, 10,074.

LEES, Frederick Richard, b. 1815, near Leeds, Eng.; connected himself at the age of nineteen with the total abstinence enterprise, in which he soon became a prominent advocate. He received, 1841–44, several prizes for essays on his favorite subject, and in 1856, £100 from the United Kingdom alliance for an argument in favor of prohibiting the liquor traffic by legislation. He held public discussions with physicians. At the "world's temperance convention" in New York in 1853 he was a delegate from the British "temperance association" of the north of England. In 1860 he received a testimonial of 1000 guineas from friends of his cause in Great Britain. He published *The Metaphysics of Owenism dissected;* a *Treatise on Logic, or the Methods, Means, and Matter of Argument; History of Alcohol.* He edited for several years *The Truth Seeker in Literature, Philosophy, and Religion.* He d. 1879.

LEESBURG, Va. See page 897.

LEESER, Isaac, 1806–68; b. Westphalia. He emigrated to Richmond, Va., in 1824, and engaged in commercial pursuits, but in 1829 was appointed rabbi of a Jewish synagogue in Philadelphia. He published *The Jews and the Mosaic Law; Discourses, Argumentative and Devotional; Portuguese Form of Prayers; Descriptive Geography of Palestine,* from the Hebrew of rabbi Joseph Schwartz; and a *Translation of the Holy Scriptures* (Jewish) *from the Original Hebrew.* In 1843 he established *The Occident and American Jewish Advocate,* a monthly periodical; in 1850 retired from the ministry.

LEET COURTS, in English law, mean courts held in a manor, township, or hundred, for local purposes.

LEETE, William, d. 1683; b. in England early in the 17th c.; emigrated to America in 1637; was an early settler in New Haven, Conn., and one of the founders of the town of Guilford. He was governor of the state 1661–65, and frequently a commissioner of the colonies between 1655 and 1679. He harbored and defended the regicides Goff, Whalley, and Dixwell in 1661, and was again elected governor in 1676, and annually thereafter until his death, at Hartford, 1683.

LEEU'WARDEN, a t. of the Netherlands, capital of the province of Friesland, in a rich and extensive plain, on the Harlingen and Gröningen canal, 16 m. e.n.e. of Harlingen. It contains a handsome town-hall, an ancient palace of the princes of Orange, and many churches. Numerous canals intersect the town. Leeuwarden has a society for the investigation of Frisian history, antiquities, and language, and another for the study of natural history. Linen fabrics and paper are manufactured, and a trade in horses is carried on. Pop. '80, 29,151.

LEEUWENHOEK, or **LEUWENHOEK**, Anthony van, one of the earliest microscopic observers, was b. at Delft, in Holland, in 1632, and d. in the same town in 1723. The *compound microscope*, as it existed in his time, was very imperfect, and subject to many errors, which induced Leeuwenhoek to employ only *simple microscopes*, that is to say, very small lenses of short focal lengths, which were fixed between two plates of metal that had been pierced with a very narrow opening. He bequeathed to the royal society of London (where they are carefully preserved) a collection of these microscopes. It was in the *Philosophical Transactions* of this society, to which he contributed 112 papers, that most of his observations were originally published.

Amongst the most important of his investigations may be mentioned a memoir communicated to the royal society in 1690, in which he discovered, and clearly demonstrated, the continuity of the arteries and veins through intervening capillaries, and thus afforded ocular demonstration of the truth of Harvey's views regarding the circulation; he also examined the structure of the crystalline lens and of the brain. He is, perhaps, most generally known as the discoverer of the *rotifers*, and as being the first to recognize the property which these animals possess of alternately dying and being resuscitated, according as they are dried or provided with the water necessary for the maintenance of their vitality.

His writings were collected and published in Dutch at Leyden and Delft in seven 4to vols., the publication extending from 1686 to 1732. A Latin translation, under the title of *Opera Omnia seu Arcana Naturæ*, was published at Leyden in 1792; and an English translation was published by Mr. Samuel Hoole, in two 4to vols., in 1798–1800.

***LEE'WARD ISLANDS.** See Antilles. See *Supp.*, page 897.

LEEWAY. When a ship is steering in any direction, and a strong wind is blowing, so as to make an acute angle with the direction of the ship, the ship's actual course is

the resultant of two forces, one represented by her headway (or locomotive power), the other by the force urging her in the direction of the wind. This resultant must be somewhat between the two; and with the same power of wind, the angle between the direction in which the ship is steering and the resultant will be great or small as the headway is diminished or increased. This angle represents the leeway; and the amount of ground lost to leeward in a given distance sailed is shown by the side of the triangle subtending this angle. In all computations of the course pursued, allowance has to be made for leeway. Some ships, in tolerable weather, make scarcely any perceptible leeway, while bad sailers fall off as much as seven points of the compass.

LEFEBVRE, François Joseph, Duke of Dantzic and marshal of France, was b. at Ruffach, in Alsace, Oct. 25, 1755. He entered the army at the age of 18, and was a sergeant in the French guards when the revolution broke out. He rose in rank with wonderful rapidity. He took part with Bonaparte in the *coup d'état* of 1799. In 1804 he was made a marshal of the empire. He also conducted the siege of Dantzic, and after its capture was created duke of Dantzic. He distinguished himself in the early part of the peninsular war, and suppressed the insurrection in the Tyrol. During the Russian campaign he had the command of the imperial guard, and in 1814 of the left wing of the army which resisted the advance of the allies in France. Submitting to the Bourbons after Napoleon's abdication, he was made a peer. He died Sept. 14, 1820.

LEFEBVRE-DESNOUETTES, Charles, Comte, 1773–1822; b. Paris; entered the French army, serving in Belgium in 1792, and afterwards as aid-de-camp to Napoleon at Marengo; distinguished himself at Austerlitz; in 1806 was made brigadier, and in 1808 general of division; at the siege of Saragossa was taken prisoner by the English, but escaped from England and took part in the Austrian, Russian, and German campaigns, and in defending France from invasion in 1804. He fought at Fleurus and Waterloo, and was made a peer by Napoleon in 1815. Being condemned to death by the royalists, he escaped to the United States, and united with baron Lallemand in the effort to establish a colony of French refugees in Alabama. He entered into correspondence with Napoleon at St. Helena with a view to effecting his rescue, and for his services received by the will of the emperor the sum of 150,000 francs. While on the voyage to France he was lost at sea near the Irish coast.

LE FÈVRE, FAVRE, or FABER, Pierre, 1506–46; b. Savoy; was one of the nine original coadjutors of Loyola in the establishment of the order of Jesuits. He came of a peasant family, but was educated at the university of Paris, and at the college of Ste. Barbe, where he lectured on philosophy. Loyola was his pupil. He passed his ordination as a priest in 1534, and three years later induced the pope to permit Loyola and his companions to visit Palestine. He received the appointment of professor of theology in the Sapienza college in Rome in 1537, and the next year was sent to Parma on a special mission for reformation of the diocese. He afterwards visited Germany, where he conducted public disputations with the reformers; and in Spain and Portugal regulated the Jesuit college newly founded at Coimbra; and in Madrid, Valladolid, Valencia, etc., founded others. In 1546, on his way to join the council of Trent, he was seized with a violent fever, from which he died. After his death he was canonized, and a chapel erected in his memory.

LEFFERTS, Marshall. See page 898.

LEFKOSI'A, called also Niko'sia, ancient Leucosia, capital of the island of Cyprus (q.v.), is situated on the Pidias, in the center of an agricultural plain, about 35 m. inland from Famagosta bay. It is completely surrounded by walls, about 3 m. in circumference, and over 30 ft. high, and is entered by three gateways. It was fortified in the time of Constantine the great, but the old works were destroyed by the Venetians, who constructed the present fortifications. Lefkosia was taken in 1570 by the Turks, who massacred the greater portion of the inhabitants. It contains several buildings of interest, as the mosque of St. Sophia, the church of St. Nicholas, now converted into a granary, and the governor's palace. There is also a Latin convent, and a Mohammedan college with a library of oriental books. The kings of Cyprus of the Lusignan dynasty resided here. The streets are narrow, ill-kept, and badly paved. Lefkosia, under Turkish rule, was separated from the province in which it stands, and regarded as a fortress governed by a military chief; in 1878, when Cyprus came to be administered by Britain, it passed under civil rule, and is now the head-quarters of the civil commissioner for the province. The climate of the place is unsuited for Europeans. The manufacture of carpets, tanning, silk weaving, and saddlery are the principal employments. According to a census taken Jan., 1879, the pop. of the town was 11,197. Of this number, 5,628 were Mohammedans; 5,251 of the Greek church; Catholics, 121; Armenians, 166; English, 28; Jews, 3.

LE FLÔ, Adolphe Charles Emmanuel, b. France, 1804. He was sent as ambassador to Russia from the French republic after the revolution of 1848; returned to Paris in 1849 an adherent of Louis Napoleon, but opposed his treachery to the republic. He was arrested after the *coup d'état* that made Napoleon dictator, and soon after banished; but allowed to return in 1859. After the fall of Napoleon, during the German war he was a short time minister of war, but resigned to take again the position of minister to Russia. He was replaced by Gen. Chanzy.

LE FLORE, a co. in n.w. Mississippi, formed since the census of 1870, of portions of the counties of Carroll and Sunflower; 560 sq. miles. Two branches of the Yazoo river unite in the central portion to form that stream, which is navigable to the county-seat of Greenwood. At this point steamboats are loaded with cotton, the staple product, to go down the river. Its soil is fertile when not subject to overflow, and its surface is diversified by dense forests growing on the river borders. The Yazoo river forms its southern boundary, where by dividing, and afterwards uniting some miles below, it forms Honey island. Seat of justice, Greenwood. Pop. '80, 10,246.

LEFORT, François, was b. at Geneva in 1656. After serving for some time in the French and Dutch service, he went to Russia, where he obtained a captain's commission in the army. He fought with distinction against the Turks and Tartars, and took an active part in the intrigues which placed Peter the great on the throne. The czar never forgot Lefort, who became his chief favorite, and, next to Peter, the most important personage in Russia. He was a man of great acuteness and ability. He remodeled the Russian army, and also laid the foundation of its navy. In 1694 he was made admiral and generalissimo. When Peter the great undertook his visit to foreign countries in 1697, Lefort was the chief of the embassy, in the train of which the czar traveled *incognito.* Lefort died in 1699. See Golikof's *Vie de Lefort,* and the German monographs by Posselt (1866) and Blum (1867).

LEFT, The; or The Mountain (French, La Gauche, or La Montagne). See Political Parties, French.

LEFTWICH, Joel, 1759–1846; b. in Bedford co., Va.; was a soldier in the revolutionary war, fighting gallantly at Germantown, Camden, and Guilford, and being severely wounded at the latter place. In the war of 1812 he commanded a brigade under gen. Harrison at fort Meigs; was afterwards a maj.gen. of militia, and frequently a member of the Virginia legislature.

LEG, The, comprises all that part of the lower extremity which lies between the knee and the ankle. It consists of two bones, the tibia and fibula (see Skeleton and Foot), and of masses of muscles (together with nerves and vessels) which are held in their position by coverings of fascia, and are enveloped in the general integument.

The shaft of the tibia is of a triangular prismoid form, and presents three surfaces and three borders. The internal surface is smooth, convex, and broader above than below; except at its upper third, it lies directly under the skin, and may be readily traced by the hand. The external and the posterior surfaces are covered by numerous muscles. The muscular mass forming the calf (formed by the *gastrocnemius, soleus,* and *plantaris* muscles) is peculiar to man, and is directly connected with his erect attitude and his ordinary mode of progression. The anterior border of the tibia, the most prominent of the three, is popularly known as *the shin,* and may be traced down to the inner ankle.

The fibula, or small bone of the leg, lies on the outer surface of the tibia, and articulates with its upper and lower extremities, and with the astragalus inferiorly. It affords attachments to many of the muscles of this region.

This region is nourished by the anterior and posterior tibial arteries into which the popliteal artery separates. Both these arteries occasionally require to be tied by the surgeon in cases of wounds or aneurism. The blood is returned towards the heart by two sets of veins—the deep, which accompany the arteries, and the superficial, which are known as the internal or long saphenous, and the external or short saphenous veins. These superficial veins are very liable to become permanently dilated or varicose (a condition the nature and treatment of which are considered in the article Varicose Veins), if there is any impediment to the free transmission of the blood, or even from the mere weight of the ascending column of blood, in persons whose occupation requires continuous standing.

The nerves of the leg, both sensory and motor, are derived from the great sciatic nerve and from its terminal branches, the internal popliteal and the external popliteal or peroneal nerve.

In cases of fracture or *broken leg,* the two bones are more frequently broken together than singly, and the most common situation is at the lower third. The tibia is more often broken by itself than the fibula, in consequence of its sustaining the whole weight of the body, while the fibula has nothing to support.

LEGACY is a bequest or gift contained in the will of a deceased person of a chattel or sum of money or other thing. In England, it is provided by statute that if a legacy is given to the witness of a will, or to his or her wife or husband, the legacy is void; therefore, a legatee should never act as a witness. So bequests to superstitious uses are void, as, for example, to maintain a priest, or an anniversary or obit, or a lamp in a church, or to say masses for the testator's soul, or to circulate pamphlets inculcating the pope's supremacy. Legacies of money for charitable purposes, as for the use of schools, churches, etc., are valid, but if the money is directed to be laid out in the purchase of land for such purposes, the legacy is void by what is called the mortmain act (q.v.), 9 Geo. II. c. 36. The policy of this statute has often of late been questioned, and it is enough to say that there is a mode, often practiced, of evading it.

Legacies are divided into specific and general. A specific legacy means a legacy of a specific thing, as a particular horse, picture, silver-plate, etc., or a sum of stock in the funds. A general legacy means a sum of money, without saying out of what fund it is to come, and it is payable out of the assets generally. The important difference between the two kinds of legacy is this, that if the subject-matter of the specific legacy fail, as if the horse die or be previously sold, etc., the legacy is gone, and no compensation is given for it; while, on the other hand, if there is not enough to pay all the general legacies, then they must abate—that is, share the loss—whereas the specific legacy, if it exist, must still be paid in full. There are various rules of great nicety and intricacy connected with the proper construction of legacies in a will, which are too technical to be noticed. It is a general rule, applicable to all legacies, that they are only payable if there is money enough for the purpose, after paying all the testator's debts, for the maxim applies, that a man must be just before he is generous. The rule is, that a legacy is not payable by the executor till a year has elapsed after the testator's death, for it is presumed he requires this time to inquire into the state of the property; and this is true even though the testator has ordered the legacy to be paid within six months after the death. If a legacy is left to an infant under twenty-one, it cannot be paid to the father, or any other relation, without the sanction of the court of chancery. If a legacy is left to a married woman, the husband was entitled to claim it, unless it was left to her separate use, or unless she was unprovided for by the husband; but now, in all cases, the wife gets for her separate use all property coming to her. Interest is due on legacies from the time when the principal sum is payable—i.e., one year after the death—unless otherwise specified. If the legatee die before the testator, the legacy lapses—that is, becomes void; but there are some exceptions, as where the legatee is a child or grandchild of the testator.—In Scotland, the rules as to legacies are mainly the same, but not entirely. The details are too technical to require notice here. See Paterson's *Compendium of English and Scotch Law*, p. 233. In Scotland, a legacy can be enforced in six months after the testator's death, and bears interest from such death. If a legacy is left to a married woman, the husband is now in general bound, as in England, to settle it on the wife, by the statute 24 and 25 Vict. c. 86.

In the United Kingdom, a legacy or succession duty is levied on the amount of all legacies (except to husband or wife). Children and issue, also parents and ancestors, pay one per cent duty; brothers and sisters, and their issue, pay three per cent; uncles and aunts, and their issue, pay five per cent; granduncles, etc., and their issue, pay six per cent. Strangers in blood, and distant relatives, also illegitimate children, pay ten per cent. Since 1881, L. duties have been replaced by probate duties.

LEGACY (*ante*). Legacies are of various kinds; as, absolute, to vest at once unconditionally; conditional or contingent, limited to take effect upon some event which may or may not take place; demonstrative, to be paid out of a specified fund; model, where the will contains directions as to the way in which the legacy shall be applied to the use of the legatee; residuary, of all the personal property of the testator, not otherwise disposed of, etc. In regard to the construction of legacies, the rule is that the plain intent of the testator as collected from the whole will shall be carried into effect. Where the legatee is incorrectly described, the error may be corrected if a reference to the will itself clearly make out the testator's intent; but parol evidence is inadmissible to remedy such misdescription unless it appear that there are two persons to whom the description in the will may apply. Where a bequest is made to children, the term, unless otherwise specified, is held to mean children at the time of the testator's death, and to include a child in its mother's womb, but not illegitimate children when there are legitimate children who answer the description in the will. Whenever the estate is unable to discharge the debts and specific legacies, the general money legacies are abated proportionately; and specific legacies are themselves liable to be abated if the debts be not yet discharged. Legacies are subject to ademption, i.e., to be destroyed or withheld on account of some act of the testator indicating an intention to revoke the bequest; thus, where a testator gives a legacy to a child and afterwards makes a settlement on her, the settlement is regarded as an ademption of the legacy. When two legacies are given to the same person, the question arises whether he shall take both. It has been held that where two legacies of unequal value are given to the same person by one will, or where legacies of equal or unequal value are given to the same person by different wills, he is entitled to receive both legacies; where the same thing is given twice, or legacies of equal value are given to the same person by the same will, he is entitled to receive but one legacy. Where a testator gives a legacy to his debtor as much as or more than the debt, the legacy, in the absence of evidence to the contrary, is presumed by courts of equity to be in satisfaction of the debt; but a legacy to a debtor will not constitute a release of the debt unless it be clearly shown that such is the intention of the testator.

LEGAL, or LEGAL REVERSION, in Scotch law, means the right of redemption of an adjudication of heritable property, equivalent in England to equity of redemption of a tenant *in elegit*.

LEGAL TENDER. See MONEY.

LEGARÉ, HUGH SWINTON, 1797–1843; b. Charleston, S. C.; of Huguenot extraction. He studied law for three years, and then visited Edinburgh, where he completed his

education, traveling afterwards on the continent. Returning home, he devoted himself to farming for a time, near Charleston, and then began the practice of law in that city. He was elected to the legislature of South Carolina, and was afterwards attorney-general, being at the same time editor of the *Southern Review*. In 1832 he was sent to Belgium as *chargé d'affaires;* was a member of Congress from 1837–39; and from 1841 until his death, was attorney-general of the United States. He favored state rights, but was an opponent of nullification. His writings, collected and edited by his sister, were published in 2 vols. after his death.

LEGATE, the name of the ambassador or representative, whether temporary or permanent, sent by the pope to a particular church. In the ancient church we meet many examples of officials, called in Greek *apocrisiarioi*, and in Latin *responsales*, at the court of Constantinople; but their commission was commonly temporary, and granted for some special object. In the later constitution of the church, three classes of legates are distinguished. 1. *Legati a latere*, "legates dispatched from the side" of the pontiff, who are commonly cardinals; 2. *Legati missi*, called also "apostolic nuncios," and including a lower grade called "internuncios;" 3. *Legati nati*, "legates born," whose office is not personal, but is attached by ancient institution or usage to the see or other ecclesiastical dignity which they hold. Of the last class there were examples in most national churches; thus, the bishop of Thessalonica was legate born for Illyricum, the bishop of Arles for Gaul, the bishop of Mainz for Germany, the bishop of Toledo (though his claim was often disputed) for Spain, the bishop of Canterbury for England, etc. This institution, however, has gone entirely into abeyance; and, indeed, the authority of legates is much modified in the modern church. In the mediæval times, the legate claimed full papal jurisdiction in the country assigned to him, even overruling the local jurisdiction of the bishops of the national church. This led to many disputes; to refusals to receive legates, as in France, where the legate was obliged to wait at Lyons till his credentials should have been examined and approved at court; and to counter-legislation, as in England, to the statute of 16 Richard II., commonly known as the statute of premunire; and the council of Trent removed the ground of contention by abolishing all such claims to local jurisdiction as trenched upon the authority of the bishops. The legate, in the modern church, is little other than the ambassador, mainly for spiritual purposes, of the pope. He is held as belonging to the diplomatic body, and by the usage of Catholic courts enjoys precedence of all other ambassadors. The legates at the second-rate courts have the title of *internuncio*. Legates are commonly bishops or archbishops, in *partibus infidelium*. The establishment of a nunciature at Munich, in 1785, led to an animated controversy. In the pope's own states, as they existed before the late revolution, the governors of the legations (see ITALY, PAPAL STATES) were called *legates*.

LEGATE AND LEGATION (LEGATE, *ante*). As commonly used in modern times the word legate is applied to the person charged by the pope of Rome to represent him, or the Roman church, at the seat of government of a foreign country, or at the seat of a bishopric of the church. But the word need have no such restricted use. It was employed by the Romans under the republic, before the church controlled Rome, to indicate any person sent by the government on a special mission of importance to another government, or even to a conquered province; when a legate frequently became acting governor by virtue of such commission. *Legatus* among the Romans was a synonym of ambassador. Envoy-extraordinary, legate, ambassador, are three words signifying nearly the same thing: the first two indicating a fresh or special appointment for a specific object, and the last a more permanent mission. The term legation includes all that appertains officially to the position of a legate, an ambassador, or an envoy-extraordinary, viz., his secretaries, attachés, family, and residence. We speak of the residence of the American legation, but by "a call at the legation" one may mean a call on any officer or any of the families of the officers of the legation, meaning then by legation the seat of residence of its members.

LEGA'TO (Ital. *tied*), in music, means that the notes are to be played as if bound or tied together, or in such a manner that the one note is as it were rounded off, or flows into the following one. Many musicians think that legato passages should be played slower, which is a great mistake. Wherever *legato* is marked, either as the character of the whole piece, or only over a part of the notes, it is the sign that the music requires to be performed in a flowing manner, and without any interruption between the striking of the notes.

LEGA'TUM REI ALIE'NÆ, in the Roman law, is the legacy of a thing which does not belong to the testator. In England and Ireland such a legacy is simply null and void; but in Scotland the Roman law has been adopted, by which, if the testator knew the thing bequeathed was not his own, the executor is bound to purchase something else, as compensation to the legatee.

LEGEND (Lat. *legenda*, things to be read, lessons) was the name given in early times, in the Roman Catholic church, to a book containing the daily lessons which were wont to be read as a part of divine service. Then the narratives of the lives of saints and martyrs, as well as the collections of such narratives, received this name, because

the monks read from them at matins, and after dinner in the refectories. Such legends were also inserted in the breviaries (see BREVIARY), in order that they might be read on the festivals of the saints and martyrs. Among the mediæval collections of legends, that drawn up by the Genoese archbishop, Jacobus de Voragine, in the second half of the 13th c., under the title of *Legenda Aurea* (the Golden Legends), or *Historia Lombardica*, is the most celebrated. But the most comprehensive and valuable work on the subject is that commenced by the Bollandists (q.v.) in the 17th c.—*Acta Sanctorum* (q.v.)—and still going on. The way in which a credulous love of the wonderful, exaggeration of fancy, and ecclesiastical enthusiasm, at times even pious fraud, mixed themselves up in these narratives with true history, caused stories of a religious or ecclesiastical nature generally to be designated as legends, in contradistinction from authentic ecclesiastical history; and thus the word "legends" also serves to separate religious from secular traditions, and from those wild tales (Ger. *märchen*) that delighted the peasantry of mediæval Europe. Legends in this sense of the word, as spiritual or ecclesiastical sagas, are found not only in the Roman Catholic but also in the Greek church, and their origin reaches back to the earliest ages of Christianity—Christ himself, the Virgin, John the Baptist, the apostles, and other prominent persons of the gospel history having become, at a very early period, the subject of them. But this tendency to mythic embellishment showed itself more especially in regard to Mary, the later saints, martyrs, and holy men and women. From the ecclesiastical literature of the eastern and western churches, especially of the latter, the legends also found an entrance into the *national* literature of Christian nations. Among the Germans this was very markedly the case after the second half of the 12th c., although specimens of legendary poems are not altogether wanting at an earlier period. We may mention, for example, the *Kaiserchronik* (Imperial Chronicle), where the legendary element forms a very important part of the whole; and Werner's versified *Marienleben* (Life of Mary), written in 1173, etc. The authors of these works were ecclesiastics; but already laymen, too, had appeared in the same field. The poetic versions of the legend of St. Oswald and that of Pilate sprung from this class; and in the following age, when the mediæval poetry of Germany was in its richest bloom, and the fosterers of the poetic art were emperors and princes, rather than ecclesiastics, the legend was employed by laymen on a grand scale, as the subject-matter of epic narratives. Thus, Hartmann von Aue (q.v.) worked up into a poem the religious legends about Gregory; Konrad von Fussesbrunnen, those concerning the "childhood of Jesus;" Rudolf von Ems, those about "Barlaan and Josaphat" (q.v.); and Reinbot von Durne, those about "St. George." Between the 14th and 16th centuries, legends in prose began also to appear, such as Hermann von Fritzlar's *Von der Heiligen Leben* (written about 1343), and gradually supplanted the others. Finally, in the 16th c., when Protestantism began to powerfully influence the whole of German literature, the legend disappeared from German poetry, or passed over into the moral-didactic and also the comic narrative, in which form it was employed by Hans Sachs with the happiest effect. Numerous attempts have been made to resuscitate it in modern times. The first of the recent poets who clearly apprehended the poetic and spiritual elements of the old Christian legend was Herder (q.v.); and since his day many German poets—for example, the "Romantic School"—have endeavored to give these a new embodiment.

LEGENDRE, ADRIEN MARIE, an eminent French mathematician, b. at Paris in 1752. He obtained, in 1774, a professorship of mathematics in the military school at Paris, and in 1783 was admitted a member of the academy. In 1787 he was employed by the French government, along with Cassini and Mechain, in measuring a degree of latitude, and was chosen to perform the calculations after the work of observation had been finished. In 1808 he was appointed by the imperial government president for life of the university, and after the second restoration an honorary member of the commission for public education, and chief of the committee of weights and measures. But because in an election to a place in the academy he did not vote for the ministerial candidate, he was deprived, in 1824, of his pension of 3,000 francs. He died Jan. 9, 1833. Legendre is the author of *Théorie des Nombres* and *Eléments de Géométrie*, and particularly distinguished himself by his investigation of the difficult subject of the attraction of the elliptic spheroid, and of a method for determining the paths of comets.

LEGER-LINE, a kind of tackle used in fishing. It consists of a bullet or piece of lead with a hole through the center, through which a gut-line is threaded, having at the end of it a hook. About 18 or 20 in. above the hook a shot or bead is fastened firmly to the line to prevent the lead from slipping down the line nearer to the hook. The hook being baited, the tackle is then cast into the water. The lead rests on the bottom, and the line is kept tight, but without lifting the lead off the bottom. The moment a fish bites at the bait, it is felt by the angler, who immediately gives a strong pull or strike. This method of fishing is used chiefly for barbel or bream.

LEGER-LINES, in music, the name of those short lines above or below the staff, which are used to express those notes which extend beyond the five lines of the staff.

LEGGE, JAMES, LL.D., b. Huntly, Aberdeenshire, in 1815; graduated at King's college and university in 1835; studied subsequently at Highbury theological college, London, and received from the university of Aberdeen the degree of LL.D. in 1870. In 1839

he was appointed by the London missionary society a missionary to the Chinese, and reached Malaeca in Dec. of the same year. In 1840 he took charge of the Anglo-Chinese college founded by the rev. Dr. R. Morrison in 1825. In 1843 he removed to Hong-Kong, where he discharged missionary duties, and officiated as minister of the English union church until 1867, when he visited England. While in England he was presented by the government of the colony with a service of plate "in acknowledgment of many valuable public serviees freely and gratuitously rendered." He was presented also by many of the Chinese inhabitants with a valuable and beautiful silver tablet, made after the Chinese fashion. In 1870 he returned to Hong-Kong. In 1875 some gentlemen eonnected with the China trade formed themselves into a committee to establish a chair of the Chinese language and literature at Oxford, to be oeeupied first by Dr. Legge. The university responded to the proposal, and the chair was eonstituted in Mar., 1876. Dr. Legge took a prominent part in the diseussions held in 1847, in China, about the proper rendering in Chinese of the words God and Spirit, and published a volume in 1852 under the title of *The Notions of the Chinese concerning God and Spirits.* His ehief work is an edition of the Chinese classies with the Chinese text, a translation in English, notes critieal and exegetical, and eopious prolegomena. He was led to prepare this, he says, in 1841, from a conviction that he "should not be able to eonsider himself qualified for the duties of his position until he had thoroughly mastered the elassical books of the Chinese, and had investigated for himself the whole field of thought through whieh the sages of China had ranged, and in whieh were to be found the foundations of the moral, soeial, and politieal life of the people." His plan was to embraee what are called "the four *Shu*," and "the five *King*." The *Shu* were published in 2 volumes in 1861. Three of the *King* have been published, and with these are translations of various other important ancient Chinese works. For these works the Julien prize, on occasion of its first award, was given to Dr. Legge by the *Académie des Belles Lettres et Inscriptions* of the institute of Franee in 1875. He attended the eongress of orientalists at Florenee in 1878.

LEGGETT, Mortimer D., b. Ithàea, N. Y., 1831; emigrated to Ohio in 1847, where he entered the legal profession, settling at Zanesville. He was superintendent of sehools in that eity at the beginning of the rebellion in 1861, when he raised an infantry regiment, of which he was appointed col. in Jan., 1862. He led this regiment, the 78th Ohio, at Fort Donelson, Pittsburg Landing, and Corinth. He commanded at the capture of Jaekson, Tenn., and defended Bolivar against a superior force. He was made brig.gen. of volunteers in 1862; was severely wounded at Champion Hills and Vicksburg, but took part in the Atlanta eampaign and in Sherman's mareh to the sea, and for gallant conduct in the latter was brevetted maj.gen., and afterwards promoted to a full major generalship. He was appointed eommissioner of patents in 1871.

LEGGETT, William, 1802–39; b. New York; educated at Georgetown, D. C.; was midshipman in the navy, 1822–26; published in 1825 *Leisure Hours at Sea*, a volume of poems written while in the navy; beeame in 1828 editor of the *Critic*, a weekly journal, which was afterwards united with the *New York Mirror*. Several articles of his whieh appeared in the *Mirror* and other magazines he subsequently published in a volume with the title of *Tales by a Country Schoolmaster*, whieh was followed by *Sketches at Sea*. In 1829 he beeame one of the editors of the *Evening Post*, eontinuing till 1836. He denouneed those who mobbed the abolitionists in 1835, earnestly defending the right of free discussion. Retiring from the *Post*, he established the *Plaindealer*, a weekly journal, whieh had a large eirculation, but was continued only a year. In 1839 he was appointed by president Van Buren diplomatic agent to Guatemala, but died suddenly at New Rochelle while preparing for his departure. Two volumes of his *Political Writings* were published after his death, with a memoir by Theodore Sedgwiek. Mr. Leggett was a fearless advoeate of freedom of opinion and diseussion, and Mr. Bryant wrote a highly eulogistic poetieal tribute to his memory.

LEGHORN, a provinee of Italy, eomprising a city of the same name, on the w. coast in the division of Tuscany, with the island of Elba in the Mediterranean sea, between that country and the island of Corsiea, and bounded on the e. by the channel of Piombino. The surfaee of the island of Elba (17½ sq.m.; pop. '72, 21,755) is hilly, and the soil is very fertile. Mueh attention is paid to the cultivation of fruit, and especially the vine. Iron ore is found. The n.e. portion of the provinee, eontaining the city of Leghorn, is a point of land projeeting into the sea; 109 sq.m.; pop. '72, 97,096—10,000 Jews.

LEGHORN (*Livorno*), one of the chief Mediterranean seaports, is a city of Tuseany, in the modern province of Livorno, 50 m. w.s.w. of Florenee, and 14 m. s.s.w. of Pisa; lat. 43° 32′ 7″ n., long. 10° 17′ 7″ e.; pop. '81, of Leghorn, 77,781; or ineluding its three suburbs, Torretta, Sta. Lucia, and S. Jacopo, 97,615.

Till 1868 Leghorn was a free port, and it has long been one of the leading emporiums of trade in Italy. Its import trade used to be estimated at £2,000,000 yearly, the chief imports being from England and Franee. Ever since the abolition of its privileges as a free port, the trade of Leghorn has not been lessened, but only changed in eharacter. It is now less a port of deposit than of transit to and from the interior of the kingdom. The town is partly interseeted with eanals, by which merehandise is conveyed from the

harbor to the numerous warehouses of the city. The port consists of an inner and outer harbor, the latter being sheltered by a mole, which projects into the sea upwards of half a mile, close to the great light-house. To secure increased shipping accommodation, a new harbor has been constructed for the reception of vessels of considerable tonnage. The roadstead, which is capacious, lies w.n.w. of the harbor, and is protected by towers and a castle. On an island s. of the harbor stands the lazaretto. The town is connected by railways with Rome, Pisa, Carrara, and the other parts of Italy.

The pop. comprises natives of many climes (Greeks, Armenians, Turks, Moors, etc.), whose foreign appearance and striking garb give a picturesque appearance to the place. This concourse of strangers is further enlarged in the summer season by a great influx of native and foreign visitors, who resort to Leghorn for its baths and mineral springs, the larter of which enjoy high medical repute. The town itself is chiefly of modern origin, and destitute of the grand historical associations and classical monuments which invest most Italian cities with their highest interest; its fine Mediterranean site, animated aspect, and great commercial life are its principal attractions. The streets are regular and well paved, but narrow, and, in consequence of being flanked by high houses, they are for the most part dark and gloomy. The churches are numerous. Many of the private dwellings of Leghorn are tasteful and luxurious, and charming villas abound in the environs. The public institutions are well organized, and include three hospitals, an observatory, a poorhouse, and a free library. Some years ago, the circuit of the town was extended by the demolition of old fortifications, and the extension of the barriers or city walls. The manufactures of Leghorn are various and important; it possesses great factories of oil, tobacco, soap, salt, and the well-known liquor *Rosolio;* its distilleries and dyeing works are also celebrated. Its chief exports are raw and manufactured silks, straw-hats and straw-plaiting, oil, fruits, borax, cheese, anchovies, marble, sulphur, and coral. Its imports comprise colonial produce, raw and manufactured cotton, and wool, cutlery, hardware, metallic goods, earthenware, and salted fish.

Towards the end of the 13th c. Leghorn was an unprotected village, which only assumed some importance on the destruction of the port of Pisa, and especially on its being assigned to Florence in 1421. Alessandro dei Medici constructed its citadel and fortified the town; Cosmo I. declared it a free port, and from that time dates the rise of its prosperity. In the 17th c., under Ferdinand I., it was a town of great commercial importance; and during the French imperial occupation of Italy, Leghorn was proclaimed the chief town of the department of the Mediterranean. In the Italian revolutions succeeding 1830, Leghorn took a foremost part.

LEGION, in the Roman military system, corresponded in force and organization to what in modern times we should call a *corps d'armée.* It differed in constitution at different periods of Roman history. In the time of the republic, a legion comprised 4,500 men, thus divided: 1200 *hastati,* or inexperienced troops; 1200 *principes,* or well-trained soldiers; 1200 *velites,* or skirmishers; 600 *triarii,* or *pilani,* veterans forming a reserve; and 300 *equites,* knights who acted as cavalry, and belonged to families of rank. During this period the legions were formed only for the season, standing armies being of later growth.

The hastati, principes, and triarii formed three separate lines, each divided into 10 *maniples* or companies, of 120 men each in the case of the two front lines, and of 60 men in the triarii. A maniple was commanded by a centurion or captain, who had a second-centurion, or lieut., and two sub-officers, or sergeants, under him: as non-commissioned officers, there was a *decanus,* or corporal, to every squad or tent of 10 men. The senior centurion of each line commanded that line, and had therefore functions corresponding to a modern lieut.col. The *primipilus,* or senior centurion of the triarii, was the most important regimental officer, and commanded the legion in the absence of the tribunes. The 300 cavalry formed a regiment of 10 *turmæ,* or troops of 30 horsemen, each under 3 *decurions,* of whom the senior had the command. The velites were light troops, not forming part of the line of battle; had apparently no officers of their own; and were attached to the 30 maniples in equal proportions. The staff of the legion consisted of 6 tribunes, who managed the paying, quartering, provisioning, etc., of the troops, and who commanded the legion in turns for a period each of 2 months. This changing command, although inconvenient, lasted till the times of the civil wars, when a *legatus,* or lieut.gen., was appointed as permanent commandant of the legion.

The offensive weapons of the hastati and principes were two barbed iron-headed javelins, one of which was hurled at the enemy on the first onslaught, while the other was retained as a defense against cavalry. The triarii had long pikes. In addition to these arms, every soldier bore a short, strong, cut-and-thrust, two-edged sword. The legionaries' defensive armor consisted of plumed helmet, breast-plate, iron-bound boot for the right leg, and a semi-cylindrical shield 4 ft. long by 2½ broad. The velites had no defensive armor, were lightly armed, and in action usually operated for flanking purposes. Each maniple bore an ensign aloft, and each legion had its distinguishing eagle. Up to the time of Marius, service in a legion was sought as honorable occupation, and men of some means were alone eligible; but Marius enlisted slaves, and turned the legions into corps of a purely mercenary army. At the same period, the manipular formation was abolished, the 3 lines were assimilated, and the legion was divided into 10 cohorts, each of 3 maniples. Soon the cohorts were raised to 600 men, making the

legion 6,000 infantry besides cavalry and velites. It was ranged in 2 lines of 5 cohorts each; but Cæsar altered the formation to 3 lines, of respectively 4, 3, and 3 cohorts.

During the later empire, the legion became complex and unmanageable; many sorts of arms being thrown together, and balistæ, catapults, and onagers added by way of artillery. Having so degenerated from its pristine simplicity and completeness, the legionary formation was soon overthrown amid the incursions of the victorious barbarians.

LEGION OF HONOR, an order of merit instituted under the French republic in 1802 by the first consul, as a recompense for military and civil services. It was ostensibly founded for the protection of republican principles and the laws of equality, and for the abolition of differences of rank in society, every social grade being equally eligible; but its real aim doubtless was, by popularizing the idea of personal distinction, to pave the way for the establishment of the empire and of the more exclusive titles of nobility that were to accompany it. The proposal for its institution was at first violently opposed by the legislative body and the tribunate, on democratic grounds, and carried eventually by a narrow majority.

The order originally comprised three classes—grand officers, commanders, and legionaries. The class of grand officers was, on the coronation of Napoleon I., divided into knights of the grand eagle (the highest class), and grand officers. On the restoration of the Bourbons, the legion was retained, but remodeled so as to lose much of its original character. The eagle was called a cross, and the effigy of Henry IV. replaced that of Napoleon. The knights of the grand eagle became grand crosses, the legionaries were transformed into knights, and the numerous educational institutions, founded by Napoleon for the children and relatives of the members of the order, were much reduced in scale. In 1837 a new military class called officers was admitted. Under the presidentship of Louis Napoleon, part of the property of Louis Philippe, which had been restored to the state, was set apart as an endowment for the legion, and new regulations were made regarding the pensions of the different classes. The original form of decoration was reintroduced, which under the second empire was somewhat modified. As worn then, it consisted of a cross of ten points of white enamel edged with gold, the points connected with a wreath of laurel proper, and in the center, with an azure circle charged with the words "Napoléon III., Empereur des Français," was a head of the emperor. The cross is ensigned by the imperial crown of France, and worn attached to a red ribbon. The grand officers also wore on the right breast a silver star charged with the imperial eagle. The same star was worn on the left breast by the knights grand cross, and their cross was attached to a broad red ribbon which passes over the right shoulder.

The vast numbers of this order, and the insignificance of many of the persons on whom it has been conferred, have detracted much from its value. The number of members in 1872 was 69,179; but the law passed in that year, that only one new member should be added for every two vacancies, reduced the membership in the next five years (1877) to 59,208. The revenue of the college of the legion has been augmented by the addition of property belonging to Louis Philippe. Out of this fund pensions are paid to those members of the order who have served in the army or navy; the civilian members receive no pension. These pensions amounted in 1877 to the sum of £454.554. By the existing statutes, candidates in time of peace must have served in some military or civil capacity for 20 years; exploits in the field or severe wounds constitute a claim in time of war. Two distributions take place in the year. The nomination of military persons takes place on parade, and of civil in the courts of justice. No ignoble punishment can be inflicted on a member of the order so long as he belongs to it. To rise to a superior rank, it is indispensable, at least for natives of France, to have passed through the inferior grades.

LEGION, THEBAN, according to tradition, a number of Christians, who, about A.D. 286, submitted to martyrdom rather than attack their brethren or sacrifice to the gods. This occurred during the persecutions by the emperor Maximin. Maurice, the leader of the league, was canonized.

LEGION, THE THUNDERING (Lat. *Legio Fulminatrix*), a legion of the Roman army which is the subject of a well-known miraculous legend. During Marcus Aurelius's war with the Marcomanni (174 A.D.), his army, according to this narrative, being shut up in a mountainous defile, was reduced to great straits by want of water; when, a body of Christian soldiers having prayed to the God of the Christians, not only was rain sent seasonably to relieve their thirst, but this rain was turned upon the enemy in the shape of a fearful thunder-shower, under cover of which the Romans attacked and utterly routed them. The legion to which these soldiers belonged was thence, according to one of the narrators, called the Thundering Legion. This legend has been the subject of much controversy; and it is certain that the last told circumstance at least is false, as the name "thundering legion" existed long before the date of this story. There would appear, nevertheless, to have been some foundation for the story, however it may have been embellished by the pious zeal of the Christians. The scene is represented on the column of Antoninus. The event is recorded by the pagan historian Dion Cassius (lxxi. 8), who attributes it to Egyptian sorcerers; and by Capitolinus and Themistius,

the latter of whom ascribes it to the prayers of Aurelius himself. It is appealed to by the nearly contemporary Tertullian, in his *Apology* (c. 5), and is circumstantially related by Eusebius, by Jerome, and Orosius. It may not improbably be conjectured, supposing the substantial truth of the narrative, that the fact of one of the legions being called by the name "thundering" may have led to the localizing of the story, and that it may have, in consequence, been ascribed to this particular legion, which was supposed to have received its name from the circumstance.

LEGITIM, or BAIRN'S PART, in the Scotch law, is the legal provision which a child is entitled to out of the movable or personal estate of the deceased father. In Scotland a father is not allowed to disinherit his children to a certain extent, the extent varying according as the wife survives or not. If a wife survive, and also children survive, the movable estate is divided into three equal parts. One is the widow's *jus relictæ* (q.v.), another is the children's legitim, the other third is the dead's part (q.v.), which the father may bequeath by will if he pleases, but if he make no will, then it goes to the children as next of kin. If the wife is dead, then half is legitim, and the other half is dead's part. Moreover, a father, though in his lifetime he may, without any check from his children, squander his property, still is not allowed on his death-bed to make gifts so as to lessen the fund which will supply legitim. The children's claim to legitim may be qualified by an antenuptial contract of marriage, which provides some other provision to the children in lieu of legitim; but, as a general rule, the children's claim cannot be defeated by anything the father can do by means of a will or what is equivalent to a will. The legitim is claimable by all the children who survive the father, but not by the issue of those children who have predeceased. It is immaterial what the age of the child may be, and whether married or not. Children claiming legitim must, however, give credit for any provision or advance made by the father out of his movable estate in his lifetime. All the children, though of different marriages, share in the legitim. In England and Ireland there is no similar right to legitim, for the father can bequeath all his property to strangers if he please; but a similar custom once existed in the city of London, and York, now abolished by 19 and 20 Vict. c. 94.

LEGIT'IMACY, PETITION TO DECLARE. In Scotland it has always been competent for a party who wished to establish that he was a legitimate person, to raise an action of declarator of legitimacy, when the court solemnly decided the question. In England this could not be done, except indirectly in the course of some suit for another purpose, until 1858, when the statute 21 and 22 Vict. c. 93 allowed all natural-born subjects whose legitimacy was doubted to present a petition to the divorce court to have the question decided. A similar act for Ireland was passed in 1868 (31 and 32 Vict. c. 20).

***LEGITIMA'TION**, in Scotch (and foreign) law, is the rendering legitimate a person who was born illegitimate. This is done by the father subsequently marrying the mother of the child, and hence it is often called legitimation *per subsequens matrimonium*. This effect, however, can only be produced provided at the time of the birth the parents might have been married, or there was no obstacle to their then marrying, if so inclined, as, for example, if they were both unmarried, and there was no impediment. Sometimes it has happened that the father, A, or mother, B, after the child's birth, marries a third person, and has children, and after the dissolution of the marriage, A and B then marry. In this perplexing case the courts have held that the intervening marriage with a third party does not prevent the bastard child, born before that event, from being legitimated by the subsequent marriage of A and B. But it has not been settled what are the mutual rights of the children of the two marriages in such circumstances, though it appears that the legitimate-born children cannot be displaced by the legitimated bastard. The doctrine of legitimation *per subsequens matrimonium* is not recognized in England or Ireland, having been solemnly repudiated by the famous statute of Merton, and the maxim prevails there, "once a bastard, always a bastard." Legitimation is also recognized in Scotland, but not in England or Ireland, where the parents were not really married, though they both *bonâ-fide* believed themselves to be married. This is called a putative marriage. The Scotch law on these subjects follows the canon law, and the French law is the same. See *Supp.*, page 898.

LEGNA'GO, a fortified t. of northern Italy, in the province of Verona, on the left bank of the Adige, 22 m. s.s.e. from Verona. It has manufactures of hats and leather, and a considerable trade in wheat and rice. The country is swampy, and intermittent fevers prevail. Legnago is one of the fortresses in the famous quadrilateral (q.v.). Pop. 3,514.

LEGOUVÉ, GABRIEL ERNEST WILFRID, b. Paris, 1807; son of Gabriel Marie; adopted the profession of his father, and wrote miscellaneously, but chiefly for the stage. His most important work, *Adrienne Lecouvreur*, was written in association with Scribe and played by Rachel. He also composed a version of the story of Medea, in which the great tragedienne refused to perform, being heavily fined by her manager in consequence. Legouvé became a member of the academy in 1856.

LEGOUVÉ, GABRIEL MARIE JEAN BAPTISTE, 1764–1812; b. Paris; was a poet of ability and erudition, wealthy by inheritance, who devoted his life to literature. He wrote several tragedies, which met with success, and one of these, *Epicharis et Néron*,

was dignified by the performance of the great actor Talma in the character of the tyrant. His *Henri IV.* and *La Mort d'Abel* were highly esteemed, and he wrote also several poems of merit. He was a member of the institute, and professor of Latin poetry. The latter part of his life was rendered unhappy by domestic affliction and other troubles, and in 1810 he became deranged and was placed in a private asylum, where he died.

LEGRAND DU SAULLE, Henri, a French physician; b. in Dijon, 1830; of high authority on the treatment of the insane. His work, *Dé Folie Devant les Tribunaux*, was awarded an academical prize. His essay on *Le Délire des Persécutions*, suggested by the rancor of retaliation against the commune, attracted general attention.

LEGS, Human, are not unfrequently borne as charges in heraldry, sometimes naked, sometimes booted, and they may be coupled, i.e., cut evenly off, or erased, cut with a jagged edge, and that either at the thigh or below the knee. The knee when represented is always embowed. A remarkable device of three legs in armor, conjoined at the thighs, and flexed in triangle, forms the insignia of the ancient kingdom of Man, with the appropriate motto, *Quocunque jeceris stabit.* "The classical symbol of the island of Sicily (Trinacria) was formed of three naked legs similarly conjoined, and the triple-mountained Isle of Man might have awakened in its Norman sovereigns some recollections of their Mediterranean conquests."—*Planché.*

LE'GUME, *Legumen*, in botany, a fruit consisting of a single carpel, two-valved, and with the seeds—one or many—attached to the ventral suture only. It is commonly called a *pod*, and occurs in most of the species of the great natural order *leguminosæ* (q.v.), of which the bean and pea are familiar examples. The legume generally opens when ripe, and then both by the dorsal and ventral suture; whereas the *follicle*, which nearly resembles it, opens by a suture along its face, and is one-valved. A few legumes do not open, but the sutures are present. Some are divided by transverse partitions (*diaphragms*); and the kind called a *lomentum* is contracted in the spaces between the seeds, and separates into pieces instead of opening.

LEGU'MINE, or Vegetable Caseine. The seeds of most leguminous plants (peas, beans, lentils, etc.), and of the sweet and bitter almond, contain a proteine or albuminous body, which in all its essential properties corresponds with the caseine of milk. For example, it is precipitated from its solutions by rennet, acetic acid, alcohol, etc., and is not coagulated by boiling; while, as in the case of milk, the application of heat occasions the formation of a pellicle on the surface. The affinity of the two kinds of caseine is further shown by the fact that cheese is made by the Chinese from peas and beans.

In order to obtain legume, peas, beans, or lentils are well soaked in hot water, and after being reduced to a pulp, are mixed with a considerable quantity of water. The starch, membranes, etc., soon sink to the bottom, and the legumine must be precipitated by acetic acid from the decanted or filtered fluid. Dry peas contain about one-fourth of their weight of legumine.

LEGUMINO'SÆ (*fabaceæ* of Lindley), a great natural order of exogenous plants, containing herbaceous plants, shrubs, and trees, many of them of the greatest magnitude. The leaves are alternate, usually compound, and have two stipules at the base of the leaf-stalk, which often soon fall off. The inflorescence is various. The calyx is inferior, 5-parted, toothed or cleft, the segments often unequal. The petals are 5, or, by abortion, fewer, inserted into the base of the calyx, usually unequal, often *papilionaceous* (q.v.). The stamens are few or many, distinct or variously united. The ovary is 1-celled, generally of a single carpel; the style simple, proceeding from the upper margin, the stigma simple. The fruit is either a legume (q.v.) or a drupe (q.v.). The seeds are solitary or numerous, occasionally with an aril, often curved; the cotyledons very large.—There are three sub-orders: 1. *Papilionaceæ*, with papilionaceous flowers; 2. *Cæsalpineæ*, with irregular flowers and spreading petals; 3. *Mimoseæ*, with small regular flowers.—This natural order contains almost 7,000 known species, of which about 5,000 belong to the sub-order *papilionaceæ*. They are spread over all parts of the world, from the equator to the poles, but their number is greatest in tropical and sub-tropical regions. They are applied to a great variety of purposes, and some of them are of great importance in domestic economy, the arts, medicine, etc. To this order belong the bean, pea, kidney-bean, and all kinds of *pulse;* clover, liquorice, broom, laburnum, lupine, senna, and many other medicinal plants; tamarind, logwood, indigo, and many others which afford dyes, etc.; the *acacias*, *mimosas*, etc. Many species are interesting on account of their beauty of form, foliage, or flowers. In the seeds of many is found a nitrogenous substance called *legumine* (q.v.) or *vegetable caseine.*

LEH. See Le Leh, *ante.*

LEHIGH, a co. in s. Pennsylvania, having the Lehigh river for its n. and n.e. boundary; drained also by Jordan creek, running south-eastward, and emptying into the Lehigh river at Allentown; 341 sq.m.; pop. '80, 66,220. Its surface is diversified and has features of great natural beauty, with comparatively little woodland. Its n.w. border is defined by the Kittatinny, or Blue, mountain and valley, the latter remarkable for its beauty and fertility. In the extreme s.e. is South mountain. It contains Delaware

Water Gap in the extreme northern portion, a celebrated resort for tourists, where the Delaware river passes through a narrow gorge in the Blue mountains, 3 miles in length, whose sides rise 1400 ft. above the water, and whose rocks are composed of Silurian limestone, Medina sandstone, and slate. It contains zinc and iron mines, and extensive iron works, furnaces, rolling mills, and iron foundries. Iron-ore produced, '80, 321,332 tons. It had, in 1870, 23 iron mines, employing 383 hands (140 underground), with a capital of $223,447, and annual product of $384,168. It had 12 stone quarries, employing 95 hands, with a capital of $28,700 and annual product $59,995. Its leading industries are the manufacture of carriages, bricks, clothing, leather, tin, copper, and sheet-iron ware. Among its manufactories are breweries, tanneries, refined petroleum and currying establishments, saw and flour mills. It had, in 1880, 473 manufacturing establishments, employing 5,743 hands, with a capital of $12,850,472, and an annual product of $14,097,475. Its soil is fertile and produces fruit, wheat, and all kinds of grain. Cash value of farms in 1870, numbering 3,045, $23,555,476. Value of all live stock in 1870, $1,949,157. It is intersected by the Lehigh Valley railroad, the Lehigh and Susquehanna, the East Pennsylvania branch of the Philadelphia and Reading railroad, and the North Pennsylvania railroad. Seat of justice, Allentown.

LEHIGH RIVER, in e. Pennsylvania, rising in the s.w. extremity of Pike co., flows s.w. to the Blue ridge, 12 m. below Mauch Chunk, passing through a gorge of the Kittatinny mountain, then s.e. to Easton, uniting at that point with the Delaware. It is nearly 120 m. in length, and by skillful engineering it has been made to float steamboats from Whitehaven, 84 m. from its mouth. It is a swiftly flowing stream passing through a rich anthracite coal, iron, and lumber region, winding among sterile mountain ranges, through narrow ravines, and over level, fertile plains. Its course is parallel with the railroad of the Lehigh coal and navigation company from Mauch Chunk to Easton.

LEHIGH UNIVERSITY, in South Bethlehem, Northampton co., Penn., was founded in 1865 through the liberality of Asa Packer, who gave 56 acres of land as a site and endowed it with the sum of $500,000. It is a Protestant Episcopal institution. Number of professors in 1885, 14; students, 307. President, R. A. Lamberton, LL.D.

LEHMANN, Charles Ernest Rodolphe Henri, b. at Kiel, in Holstein, 1814; received his first instruction in painting from his father, but afterwards went to Paris, where he was the pupil of Ingres, and began to exhibit in 1835. His pictures are remarkable for brilliancy of color, and for a certain poetic quality which appeals strongly to the imagination. The Bible and Greek literature have afforded him his best subjects. He has also painted some excellent portraits of eminent men.

LEI'A, an important trading t. of India, in the Punjab, is situated in a fertile district on the left bank of the Indus, 60 m. s. of Dera Ismael Khan. Lat. 31° n., long. 71° e. Besides being a mart for the sale of the produce of the surrounding district, it carries on an extensive transit-trade between the Punjab and the regions w. of the Indus. Provisions, metals, grain, and cotton and wool are the chief articles of sale. Pop. '68, 17,033.

LEIBNITZ (more accurately Leibniz), Gottfried Wilhelm von, perhaps the most extraordinary example of universal scholarship upon record, was b., July 6, 1646, at Leipsic, where his father was professor of law. He studied at the "Nicholas school" of his native city, under Thomasius; but he derived much more of the vast store of miscellaneous learning which his after-life exhibits from his private studies in a library to which he had access, and thus entered the university with peculiar advantages in his 15th year, selecting the law as his profession, but devoting himself also to philosophy and literature. He spent some time at the university of Jena, and on his return presented himself for the degree in law, for which he composed two essays of very remarkable merit. In consequence of his youth, however, he was refused the degree at Leipsic, and ultimately (in his 20th year), in 1666, graduated at Altdorf, where he was offered, but declined, a professorship; accepting in preference the post of secretary and tutor in the family of the baron von Boineburg, to whom he rendered, from 1667 till 1672, a variety of literary and politico-literary services, and through whose recommendation he was appointed member of the judicial council in the service of the archbishop-elector of Mainz. In 1672 he accompanied Boineburg's sons to Paris, and there submitted to Louis XIV. an essay entitled *Consilium Ægyptiacum*, containing a plan for the invasion of Egypt, which is by some supposed to have led to the Egyptian expedition of Bonaparte in 1798. In the course of this tour, which extended also to London, he formed the acquaintance of the most eminent philosophers of France and England, and among them of Newton. On the death of the elector of Mainz, Leibnitz, declining an appointment at Paris which would have necessitated his becoming a Catholic, entered the service of the duke of Brunswick, and followed that prince, in 1676, as privy-councilor and librarian, to Hanover, where he permanently fixed his residence. His literary services to this court were of a very miscellaneous character. After a tour of historical exploration he prepared a series of works illustrating the history of the house of Brunswick, seven volumes of which were published by himself, and two have been edited in our own time by Dr. Perz, *Annales Imperii Occidentis Brunswicensis* (1843–45). He undertook likewise the scientific direction and organization of the royal mines, into which he intro-

duced many improvements; and he also, at the desire of the prince, took an active part in the negotiation for church union, and the theological discussions connected therewith, which formed the subject of a protracted correspondence with the celebrated Bossuet (q.v.) and with M. Pelisson, and led to the preparation, on his own part, of a very curious exposition of doctrinal belief (published from his MS. within this century, under the title *Systema Theologicum*), which, although written in the assumed character of a Catholic, was intended to form a basis of negotiation. His private studies, however, were chiefly philosophical and philological. His correspondence on these subjects was most extensive, and he contributed largely to almost every literary and scientific journal of his day. He was the chief organizer of the academy of Berlin, of which he was the first president, and originated both at Dresden and Vienna a project for the establishment of similar bodies. It was to him, likewise, that Peter the great, who invited him to a meeting at Torgau, and bestowed on him a pension of 1000 rubles, with the title of privy-councilor, owed the plan of the since celebrated academy of St. Petersburg. On the accession of the elector George to the crown of Great Britain, as George I., Leibnitz was disappointed in his expectation of accompanying the prince to his new court; nor did he long survive that event. His death, which was rather unexpected, occurred at Hanover, Nov. 14, 1716. His biographers justly complain that his memory was treated with but little honor by his contemporaries; but a tardy atonement for their neglect has been recently offered by the erection of a monument in one of the squares of the city of Hanover. The scholarship of Leibnitz, as regards the vastness of its range, is probably unexampled. He was eminent in languages, history, divinity, philosophy, political studies, experimental science, mechanical science, and even belles-lettres. But it is chiefly through his philosophical reputation that he lives in history. It would be difficult to convey, in a popular sketch, a correct notion of his philosophical system, especially as he has nowhere himself methodized it. He was deeply influenced by the Cartesian philosophy, but he differed from Descartes both in his method and in some of his principles. The most important peculiarities of Leibnitz's system may be reduced to four: his doctrine as to the origin of ideas, his theory of monads (q.v.), the "pre-established harmony," and the theory of optimism (q.v.). Of these, three will be found discussed under separate heads. The pre-established harmony requires a few words of explanation. The object of this singular conception was to explain the mysterious problem of the joint action of mind and body, or even in general the joint action of any two or more of the so-called "monads," since Leibnitz held that no two "monads" could act upon each other. Descartes had resolved this problem by his theory of assistance, which attributed all action to the direct assistance of God. Leibnitz, rejecting this hypothesis, supposed the mind and the body to be two distinct and independent machines, each having its own independent though simultaneous action: but both so regulated by a harmony pre-established by God, that their mutual actions shall correspond with each other, and shall occur in exact and infallible unison. This harmony Leibnitz explained by the example of two time-pieces, one of which should be made to strike just as the other pointed to the hour. In the same way, just at the moment when the mind freely determines itself to a particular act, the body, by a harmony prearranged by God, will produce the particular action which is required to give efficacy to the volition of the mind. One of the most painful incidents in the literary and scientific history of Leibnitz was his controversy with Newton as to priority in the discovery of the method of the calculus. See CALCULUS, FLUXIONS. Leibnitz was the inventor of a calculating-machine, the working-model of which is still preserved at Göttingen. His works were first collected by Dutens, in 6 vols. 4to, Geneva; his philosophical works by Raspe, Amsterdam, 1767; and his letters at Lausanne and Geneva, 2 vols. 4to, 1745. Other collective editions are those of Pertz (1843–62), Foucher de Careil (begun in 1859), and Klopp (begun in 1864). The best edition of Leibnitz's philosophical works is Erdmann's (1840); and the best life of Leibnitz is by Guhrauer, *Leibnitz, Eine Biographie*, 2 vols. 8vo (Breslau, 1842).

LEIBNITZ, GOTTFRIED WILHELM VON (*ante*), not only one of the most remarkable examples of universal scholarship, but also of early acquirement, excelling in precocity the prodigy Chatterton; for, although he did not reach maturity as soon as Chatterton, he excelled him in mental power and acquirements at an early age. At a period when the latter was merely a brilliant writer, Leibnitz was a philosopher and had solid acquirements. Before he was 12 years old he was quite familiar with many Latin authors, and was also making critical readings of Bacon and Descartes as compared to Aristotle and Plato, and was forming theories which embraced the idea of the unity of all the sciences. His treatise *De Principio Individué*, which was produced on becoming bachelor of philosophy at the age of 17, is the most wonderful example of early erudition and power of thought on record. The refusal of the faculty at Leipsic to grant him the degree of doctor of law was, according to some, only ostensibly on account of his youth, really because of ill-will entertained towards him, and which caused him to leave his native city forever. Previous to meeting the baron von Boineberg he became acquainted with a society of Rosicrucians and alchemists at Nuremberg, and as their secretary recorded their experiments and searched the alchemic authors for evidences of the philosopher's stone. It would require a large volume to contain brief notices, not

to speak of commentaries, on all his works. His visit to Paris in company with the sons of Boineburg resulted in his acquaintance with Huygens and Cassini—the one the greatest continental physicist, and both the most accomplished practical astronomers of that time. He also visited Newton in England, and must have obtained from these sources many ideas which aided him in forming his system of the calculus. At Paris, especially, he devoted himself to mathematics and physics. He was an especial friend and admirer, and indeed pupil, of Huygens, although the latter did not follow the methods of the calculus until his old age because of his wonderful facility in the older methods. The genius of Leibnitz must have been colossal, but his domain was too vast to admit of undisputed sway, and some of his doctrines require the support of reasoning which is not sufficiently grounded in established truths. There is a certain degree of unwarrantable assumption and hypothesis involved in the doctrine of monads, and his doctrine of pre-established harmony, as briefly noticed in the foregoing article, is not as well grounded in logical data as many more recent works on metaphysical or philosophical subjects, although exhibiting wonderful talent in giving verbal form to brilliant ideas. Many of his ideas had been formed in his youth, and notwithstanding his immense intellectual ability, they must have been in some degree, it may be justly said, crude; for if modern biological science has demonstrated anything, it is the fact that a certain length of time—more than 25 years—is required to allow of the development of any brain as an efficient organ of extensive thought; and this remark is justified by the fact that his doctrine of monads, of pre-established harmony, and of optimism, have resulted in no positive advancement in mental or physical science. The doctrine of monads, besides being inconsistent with the tenor of much else that he wrote, may indeed be taken as one of the foundations of materialism; at least, some of the hypotheses contained in it may be so used. If his hypothesis that to arrive at the essential power of matter (and he concedes that it possesses inherent power) we must proceed to its ultimate elements, be well founded, then the doctrine of evolution is easily maintained—a doctrine which, although not demonstrably inconsistent with that of optimism, or of pre-established harmony, is opposed to ideas assumed in many other portions of his writings. For instance, at the congress of Nimeugen, in 1677, he produced a treatise in which he defined theology as the jurisprudence of God, and maintained, although not a Roman Catholic, that all the states of Christendom should form but a single body, with the pope for its spiritual and the emperor for its temporal head. To uphold many of his philosophical ideas he maintained that logical truth is equivalent to actual truth, and that ideas are identical with things; and this is a logical deduction from the premises that an ultimate particle, or rather its attenuation, like a monad, possesses the power of thought. From this also naturally flows the idea that any abstract conception which involves no contradiction with reason must be absolutely true. The doctrine of monads is essentially a mystical one, and may be taken as the nidus for the evolution of many hypotheses or theories. If, as Leibnitz maintained, monads be the simple, active elements of things, the veritable living atoms of nature, the final forces of the universe, uninfluenced from without, but continually changing by an inward principle in consequence of which they develop themselves spontaneously, and if they be, properly speaking, souls, each independent of the other, and also a microcosm of the whole universe, we have elements out of which may be formed various evolution hypotheses, preordained harmonies, or simple pantheism. God, he says, is the original monad, from which all the rest are generated. To maintain some of his positions he considers that there are two kinds of monads, conscious and unconscious, and that God has so perfected all things that all the monads in the universe work together to accomplish that for which they were intended. This harmony results from the nature of monads, as well as from a pre-established divine decree. A harmony therefore follows between all parts of matter, between the future and the past, and between divine decrees and human actions; and one physical cause follows another in preordained sequence. The doctrine of optimism naturally follows from these conclusions.

LEI'CESTER, a t. of England, municipal and parliamentary borough, and capital of the county of the same name, is situated on the right bank of the Soar, about 100 m. n.n.w. of London. It contains numerous interesting churches, one of which, St. Nicholas, is partly built of bricks from an ancient Roman building in the vicinity. Besides the ecclesiastical edifices, there are a number of important educational and benevolent institutions. Manufactures of boots and shoes, and of woolen and hosiery goods, lace-making, wool-combing and dyeing, are extensively carried on. Leicester is the center of a famous agricultural and wool-raising district. There are about 12 fairs annually, The town of Leicester returns 2 members to Parliament. Pop. '81, 122,351.

Leicester, known to the Romans as *Ratæ*, derives its present name either from Leire, the former name of the Soar, or from its having been a *cuitas legionum*, a station or camp (*castra*) of the legions, which the Saxons would translate into Legeo-ceaster, corresponding to the British or Welsh Caer-leon. Under the Lancastrian princes, its castle, now almost entirely destroyed, was frequently a royal residence. The ruins of the abbey of St. Mary Pré, or De Pratis, where cardinal Wolsey died, still exist.

LEICESTER, Robert Dudley, Earl of, b. 1531, was the son of John Dudley, duke of Northumberland. His father was executed on account of the part which he took in the cause of lady Jane Grey, and he was himself imprisoned on the same account. He was liberated in 1554; and in 1558, on the accession of Elizabeth, the dawn of his fortune began. He was made master of the horse, knight of the garter, a privy-councilor, high steward of the university of Cambridge, baron Dudley, and earl of Leicester. For these high honors he seems to have been indebted solely to a handsome person and a courtly manner, for the course of his life shows him to have been possessed of not one single quality either of head or heart deserving of admiration. When young, he married Amy, daughter of sir John Robsart. The general voice of the times has charged him with being accessory to her murder; and it is certain that she died suddenly, and very opportunely for his ambitious views, he being at that time a suitor for the hand of Elizabeth. Elizabeth gave out that she wished him to marry Mary of Scotland; but in this the English queen was acting with her usual insincerity. She encouraged Leicester openly as a suitor long after his arrogance had disgusted the nobles, and his profligacy had brought him into disrepute with the nation. His marriage to lady Essex for a time excited the anger of his royal mistress, but she soon forgave him. In 1585 he went into the Low Countries at the head of a military force; but on this, as on two subsequent occasions, he showed himself utterly unfitted for command. He died suddenly on Sept. 4, 1588. It was commonly said that he was poisoned by his wife, she having given him a potion which he had intended for her.

LEICESTER, Simon de Montfort, Earl of. See Montfort, Simon de, *ante*.

LEI'CESTERSHIRE, an inland co. of England, lies immediately s. of the counties of Derby and Nottingham. Area, 511,719 acres; pop. '81, 321,258. The surface of the county is covered throughout by low hills. The district in the s.w., still called "Charnwood Forest," retains its name, although it is now almost destitute of wood. The "Forest" is occupied by hills, which, though inconsiderable in height, are rugged, distinct, and individual in outline. From the highest of them, Bardon hill, 853 ft. in height, an extensive view is obtained. The climate is mild, and the soil, which varies in fertility, is chiefly loamy. The richest tracks are kept in pasture, for which this county is famous. In 1875 the acreage under corn crops was 111,170; green crops, 26,456; and permanent pasture, 293,626. Grazing, and sheep and cattle breeding, are carried on with great skill and success. An improved long-horn is the favorite breed of cattle. In 1875 there were in the county 17,426 horses, 136,848 cattle, 453,477 sheep, and 25,685 pigs. The "Stilton" variety of cheese is for the most part made in this county. Coal-mines are worked, and granite, slate, and freestone quarried. The county returns 4 members to parliament.

LEICHHARDT, Ludwig, 1813–48; b. at Trebitsch, in the Prussian province of Brandenburg; studied philology, medicine, and natural science at Göttingen and Berlin; traveled in Italy, France, and England, and in 1841 went to Australia, where he won great distinction as an explorer. His *Journal of an Overland Expedition in Australia from Moreton Bay to Port Essington* was published in 1847. At the close of that year he started to go across the Australian continent from e. to w., but died on the way. His life, by Zuchold, appeared in 1856.

LEIDY, Joseph, b. Philadelphia, 1823; graduated from the medical department of the university of Pennsylvania in 1844, and thenceforward devoted himself to biological studies, especially comparative anatomy and vertebrate paleontology, on which he published valuable papers in the *Proceedings* of the academy of natural sciences in Philadelphia, in the *Transactions* of the American philosophical society, and in the *Contributions to Knowledge* of the Smithsonian institution. In 1853 he was appointed professor of anatomy in the university of Pennsylvania, and in 1871 professor of natural history in Swarthmore college. During the war of the rebellion he served with distinction as surgeon of Satterlee hospital in Philadelphia. Among his works are: *Flora and Fauna within Living Animals; Memoir on an Extinct Species of American Ox; Ancient Fauna of Nebraska; Memoir of the Extinct Sloth Tribe of North America; Cretaceous Reptiles of the United States;* and *Contributions to the Extinct Vertebrate Fauna of the Western Territories.*

LEIGH, a rapidly increasing poor-law union in Lancashire, England, a station on the Bolton and Liverpool railway, is situated 13 m. w. of Manchester. Silks, cambrics, muslins, and fustians are extensively manufactured; cotton-spinning and weaving are carried on; there is a large foundry, where agricultural implements are extensively made; and in the vicinity are productive coal-mines and flour-mills. Pop. in '61, 10,621; in '81, 21,733.

LEIGH, Benjamin Watkins, ll.d., 1781–1849; b. in Chesterfield co., Va.; graduated at William and Mary college; entered the legal profession, practicing successively at Petersburg and Richmond, and served as reporter of the court of appeals. He was frequently chosen to the legislature, and served as commissioner to revise the statutes of the state, and also to adjust questions in dispute with Kentucky. In 1835 he was elected to the U. S. senate, where he took a prominent position, but resigned in 1837. He published 12 vols. of reports of the court of appeals and general court of Virginia.

LEIGH, Edward, 1602–71; b. England; educated at Oxford and studied law in the middle temple. In 1636 he entered parliament, became a col. in the parliamentary army during the civil war, and soon afterwards a member of the Westminster assembly of divines. In 1648 he was turned out of parliament for favoring a reconciliation with the king. During the remainder of his life he was engaged in the study of theology, and published the following works: *A Body of Divinity*, London, 1654; *Annotations on the Five Poetical Books of the Old Testament*, London, 1657; *Annotations upon all the New Testament*, London, 1650; *A Treatise of the Divine Promises*, London, 1653; *Critica Sacra*, London, 1662; *A Treatise of Religion and Learning and of Religious and Learned Men*, London, 1656.

LEIGHTON, Alexander, 1568–1644; b. Edinburgh, Scotland; educated in the university there, and was professor therein of moral philosophy from 1603 to 1613, when he became a Presbyterian preacher in London, practicing medicine at the same time. He published *Speculum Belli Sacra, or The Looking-Glass of the Holy War;* and an *Appeal to the Parliament, or Sion's Plea against the Prelacie.* The latter was deemed libelous in respect of the king, queen, and bishops, and he was twice sentenced by the star-chamber to be publicly whipped, to lose both ears, to stand twice in the pillory, to be branded on the cheek with the letters S. S. (sower of sedition), to pay a fine of £10,000, and suffer perpetual imprisonment in the fleet. The Long parliament released him in 1640, after he had been confined for 11 years. He was awarded a pecuniary indemnity, and in 1642 was made keeper of Lambeth palace as a state prison, where he died.

LEIGHTON, Frederick, b. at Scarborough, England, 1830; learned drawing in Rome, entered the royal academy at Berlin as a student in 1843, finished his education at Frankfort and went to Brussels, where, in 1848, he produced his first painting, "Cimabue Finding Giotto Drawing in the Fields." After studying further at Paris and Frankfort he went again to Rome, where he reproduced the "Cimabue" for exhibition at the London royal academy in 1855. The picture was so successful as to be purchased by the queen. He has gained great distinction in his art, and among his works are: "Triumphs of Music;" "Scene from Romeo and Juliet;" "Star of Bethlehem," "Michael Angelo Nursing his Dying Servant;" "Helen of Troy;" "David;" also some sculptures. He was knighted and made pres. Royal Academy, 1878.

LEIGHTON, Robert, Archbishop of Glasgow, was b. in Edinburgh, or, as others think, in London, in the year 1611. He entered the university of the former city in 1627, took his degree of M.A. in 1631, and afterwards proceeded to France. Here he resided with some relatives at Douay, and formed the acquaintance of several Roman Catholic students, whose Christian virtues confirmed the natural charity of his spirit. Leighton, indeed, could never have been a bigot. Gentle, tender, and pious from his earliest years, he shrank from all violence and intolerance; but his intercourse with men whose opinions were so different from his own, convinced his reason of the folly and sinfulness of "thinking too rigidly of doctrine." Returning to Scotland, he was appointed, in 1641, to the parish of Newbattle, near Edinburgh; but he was not militant enough to please his fierce co-presbyters. They appeared to him, who had studied far more deeply than any Scotchman of his time the various ecclesiastical polities of Christendom, truculent about trifles. According to bishop Burnet, "he soon came to dislike their covenant, particularly their imposing it, and their fury against all who differed from them. He found they were not capable of large thoughts; theirs were narrow as their tempers were sour; so he grew weary of mixing with them." Yet we cannot altogether approve the facility with which he fraternized with the party that had inflicted such horrid cruelties on his excellent father, Dr. Alexander Leighton, in 1630, for merely publishing a book in favor of Presbyterianism. In 1652 he resigned his charge, and in the following year was elected principal of the university of Edinburgh, a dignity which he retained for ten years. Earnest, spiritual, and utterly free from all selfish ambition, he labored without ceasing for the welfare of the students. After the restoration of Charles II., Leighton, who had long separated himself from the Presbyterian party, was, after much reluctance, induced to accept a bishopric. He chose Dunblane, because it was small and poor. Unfortunately for his peace, the men with whom he was now allied were even more intolerant and unscrupulous than the Presbyterians. The despotic measures of Sharpe and Lauderdale sickened him. Twice he proceeded to London (in 1665 and 1669) to implore the king to adopt a milder course—on the former of these occasions declaring "that he could not concur in planting of the Christian religion itself in such a manner, much less a form of government." Nothing was really done, though much was promised, and Leighton had to endure the misery of seeing an ecclesiastical system which he believed to be intrinsically the best, perverted to the worst of purposes, and himself the accomplice of the worst of men. In 1670, on the resignation of Dr. Alexander Burnet, he was made archbishop of Glasgow; an office which he accepted only on the condition that he should be assisted in his attempts to carry out a liberal measure for "the comprehension of the Presbyterians." His efforts, however, were all in vain; the high-handed tyranny of his colleagues was renewed, and Leighton felt that he must resign, which he did in 1673. After a short residence in Edinburgh, he went to live with his sister at Broadhurst, in Sussex, where he spent the rest of his days in a retired manner, devoted chiefly to works

of religion. He died June 25, 1684. Leighton's best works (he published nothing during his lifetime) are to be found in an edition published at London (4 vols., 1825). All his writings are pervaded by a spirit at once lofty and evangelical. The truths of Christianity are set forth in the spirit of Plato. It was this that recommended them so much to Coleridge, whose *Aids to Reflection* are only commentaries on the teaching of the saintly archbishop.

LEIGHTON-BUZZARD, a market t. of England, Bedfordshire, is situated in a large agricultural district, 40 m. n.n.w. of London. It has claims to considerable antiquity—its church was erected in the beginning of the 13th c., and in its market-place is an ancient and elegant pentangular cross. Many of the inhabitants are employed in making straw-plait. Pop. abt. 5,000.

LEIN'INGEN, the name of one of the wealthiest of the mediatized houses of Germany, was formerly applied to a German co. in the district of Worms and Spires, with which, in the beginning of the 13th c., the co. of Dachsburg became connected as part of the family possessions. The family is one of the oldest still existing in Germany. In 1779 the head of one of the branches into which it had become divided, the count of Leiningen-Hardenburg-Dachsburg, was raised to the rank of a prince; but the peace of Lunéville deprived him of his ancient possessions—about 252 sq.m. in extent, on the left bank of the Rhine. He received, however, a compensation in other parts of Germany; and though no longer an independent prince, the princely head of the house of Leiningen retains his rank and wealth, his possessions being within the territories of Baden, Bavaria, and Hesse.

LEIN'STER, one of the four provinces of Ireland, occupies the s.e. portion of the country, and is bounded on the e. by St. George's channel and the Irish sea. Area, 4,876,933 acres; pop. '81, 1,279,190. At the period of the invasion by England (1170) this province formed two kingdoms, those of Leinster and Meath. Previously to the reign of Henry VIII., the province had been divided into the counties of Dublin, Meath, Louth, Kildare, Carlow, Kilkenny, and Wexford. The following counties were erected subsequently: Wicklow, formed from a portion of the co. of Dublin; West Meath and Longford, from a part of Meath; and King's and Queen's counties, formed out of part of Kildare.

LEI'PA, or LEIPPA, a t. of Bohemia, 42 m. n.n.e. from Prague. It is a place of considerable industrial activity, having manufactures of woolens, cotton, glass, and earthenware. Pop. 9,500.

LEIPOA, a genus of gallinaceous birds, of the family *megapodidæ*, of which the only known species is *L. ocellata*, a native of Australia, inhabiting sandy and bushy plains. It is called leipoa, or NATIVE PHEASANT, by the colonists. Like the Australian jungle-fowl, the leipoa constructs mounds of sand, or earth, and leaves, in which to lay its eggs. More than a dozen are often found in a nest. They are about three times as large as those of a common fowl, and are much esteemed as food. When pursued, it seeks to escape rather by running and hiding in the bush than by the use of its wings. Few birds seem more likely to prove useful in domestication than the leipoa.

LEIP'SIC (formerly *Libzk* or *Lipzk*, said to mean the home of the linden or lime trees, from the Slavic *Lip* or *Lipa*, a lime-tree), a city of the kingdom of Saxony, situated about 65 m. w.n.w. of Dresden, near the Prussian border, in a large and fertle plain. The Elster, the Pleisse, and the Parthe flow through or past the city, and unite about 3 m. below it. The inner or ancient city was formerly surrounded by walls, which have now disappeared, but it is still separated from the far more extensive suburbs (*Friedrichs-stadt*, *Johannes-stadt*, etc.) by promenades planted with beautiful avenues of lime and chestnut trees. Many of the streets of the inner city are narrow and crooked; those of the more modern part (which contains also a number of fine squares) are wide and well built. The sanitary state of the city has been much promoted by an extensive and costly system of sewers. The inner city is the principal seat of business and merchandise. The population in 1871 was 106,925; and in 1880, 149,081. The vast majority are Protestants, mostly belonging to the Lutheran church. Of the public buildings of Leipsic few are in any way remarkable. The two principal city churches, the *Thomaskirche* and the *Nicolaikirche*, date from 1496 and 1525 respectively. The stately *Rathhaus* (town-hall) was built in 1556. Of the three castles which formerly existed, only one remains, the Pleissenburg, now used for government offices and barracks; the ditch has become a place for drill; and the tower is now an obesrvatory. The finest buildings in Leipsic are the museum, built 1856–58, and the new theater, one of the largest and handsomest in Germany. Near it are the main buildings of the university, which is, however, now equipped with spacious anatomical, physiological, and other laboratories in other parts of the town. The university owes its origin to the removal of a large number of German students from Prague to Leipsic in 1409, in consequence of disputes between the Bohemians and Germans. It has always maintained a high reputation among the universities of Germany, and many distinguished names are connected with it. There are upward of 100 professors and 50 lecturers on the teaching staff; but the number of students exceeds 3,000, but is smaller than at Berlin and at Vienna. The library contains 300,000 vols. and 2,500 MSS.; and the city library has 100,000 vols. and 2,000 MSS.

Leipsic is the center for the administration of a wide district; and in 1877 the city was made the seat of the supreme courts of justice for the German empire. The town has many educational institutions, including two gymnasia, several benevolent foundations, numerous scientific associations, and various institutions for the cultivation of the fine arts. In particular may be mentioned the conservatorium of music, which is reckoned one of the first in Europe. See CONSERVATOIRE.

The three annual fairs (held at Easter, Michaelmas, and the new year, and lasting from three to five weeks) add much to the importance of Leipsic, and render it, with the exception of Hamburg, the greatest seat of trade in Germany. The origin of these fairs is traced back for more than 600 years. They are attended by Jews, Turks, Greeks, Armenians, Persians, and even (of late) by Chinese. The accession of Saxony, in 1833, to the German customs union (*Zollverein*), and the opening of railways, produced a great increase of the concourse and of the business at these fairs, which had previously begun to decline. Transactions to the extent of 70,000,000 thalers (above £10,000,000 sterling) now take place at the Easter fair. The wool-market, which was instituted in 1826, and is held for three days in June, is much frequented.

Leipsic is the principal seat of the book-selling and publishing trade in Germany, and indeed, in this respect, ranks third among the cities of the world, coming immediately after London and Paris. Upwards of 300 houses are engaged in the book-trade. There were also, in 1871, 50 printing establishments. Here the German book-sellers have founded a common exchange, and annual settlements of accounts take place at the Easter fair. One thousand houses are then represented by their commissioners at Leipsic. In consequence of this activity, Leipsic has become the principal seat of type-founding in Germany. Among its other manufactures are piano-fortes, scientific instruments, wax-cloths, oils, chemical products, perfumes, etc.

The city sprang up round a castle built by king Heinrich I., at the junction of the Pleisse and the Parthe. It is first mentioned as a town in 1015, and in the latter part of the 12th c. had from 5,000 to 6,000 inhabitants. It gradually increased in prosperity and importance. The famous *Leipsic conference* between Luther, Eck, and Carlstadt, in 1519, greatly tended to the promotion of the reformation. Leipsic suffered greatly in the thirty years' war, in which it was five times besieged and taken, and again in the seven years' war; and although the commercial changes connected with the French revolution at first affected it very favorably, yet it suffered not a little amidst the terrible struggles of the years 1812 and 1813, when it was alternately in possession of the French and of the allies.

The immediate neighborhood of Leipsic has been the scene of two battles of great importance in the history of Germany and of Europe—the battle of Leipsic, or of Breitenfeld (q.v.), on Sept. 7, 1631; and the great battle of Leipsic—called the *battle of nations*, which continued for three days—from Oct. 16 to 18, 1813. The latter was one of the most bloody and decisive of those which effected the deliverance of Europe from French domination. The troops under Napoleon in this battle amounted to about 180,000 men, and those of the allies, commanded by prince Schwarzenberg, marshal Blucher, and Bernadotte, crown-prince of Sweden, to almost 300,000. The loss of the French was reckoned at about 38,000 killed and wounded, and 30,000 prisoners; that of the allies to about 48,000. The victory of the allies was complete, and the French had to evacuate Leipsic.

LEIPSIC, COLLOQUY OF. The disputes in the 16th c. between the Lutherans and Calvinists having become very acrimonious, and attempts at reconciliation by several persons having been unsuccessful, the authorities and the people were convinced that greater efforts should be made to secure, if not unity, at least peace and harmony between the two churches. A conference was proposed by the theologians of Hesse and Brandenburg to those of Leipsic. The elector George of Saxony having sanctioned the plan of a private conference, the meetings commenced Mar. 3, 1631, at the residence of the upper court preacher, and, under his presidency, were held daily until Mar. 23. The confession of Augsburg was adopted as a basis, and every article examined separately. They agreed on the articles V. to VII. and XII. to XXVIII., but differed as to III., the Lutherans maintaining that not only the divine but the human nature of Christ possessed omniscience, omnipotence, etc., by virtue of the union of the two natures in his person, and that the glory which Christ received was only by his human nature; the reformers, on the contrary, denying that Christ, as man, was omniscient and omnipresent. On the tenth article they could not agree, the reformers denying the physical participation in the body and blood of Christ in the eucharist, and asserting a spiritual participation by faith. The reformers desired, if they could not agree on this point, that the two parties should be charitable to each other, and unite in opposition to Romanism. The Lutherans said the proposition must be further considered in the fear of the Lord. On the article concerning election, the reformers based election on the will of God, and reprobation on the unbelief of man; while the Lutherans regarded election as the result of God's prescience of the faith of the elect. No decided and permanent benefit resulted from the colloquy.

LEISLER, JACOB, b. Frankfort, Germany; d. in New York, 1691; was in the military service of the Dutch E. I. company, and in 1660 came to America, and went into

business on his own account. He was for a time a resident of Albany, where he became concerned in some church troubles, out of which grew litigation and contention which affected both his moral and financial standing. He afterwards settled in New York, and in 1678 sailed for Europe, but was captured by pirates, and only regained his liberty on the payment of a heavy ransom for those days—2,050 pieces of eight, or Spanish dollars. He returned to New York, and five years later was appointed a commissioner of the court of admiralty. In 1688, Francis Nicholson being governor of the province, Leisler took advantage of the English revolution to attempt an overthrow of the local government and the seizure of the administration. He overcame the party favorable to king James, declared for the prince of Orange, and seized the fort and confiscated the public funds. He planted a *battery* of six guns within the fort—thus giving the name to that portion of the island which it has borne ever since—and then proceeded to invest the northern part of the province, having been appointed commander-in-chief by the committee of safety. In Dec., 1689, he assumed the title of lieut.gov. under an indefinite dispatch from William and Mary, and refused to acknowledge the authority of gov. Sloughter on the latter's appointment to that office. He was accordingly seized and imprisoned, and, on a trial for murder and high treason, was condemned to death, which sentence was executed in New York, May 16, 1691. Leisler's condemnation was considered to have been unjustly effected, and the act of attainder which was passed upon him was afterwards reversed, his heirs indemnified through the influence of gov. Bellamont, and his remains exhumed and honorably reinterred in the Dutch church in Garden street, New York. In 1689 Leisler purchased for the Huguenots the tract called New Rochelle, in Westchester co., N. Y. The petition of his son, which, with other documents referring to this history, is to be found in the *Documentary History N. Y.*, vol. xi., sets forth the nature of the labors of Jacob Leisler, sen., in behalf of the interests of William and Mary, and in behalf of the Protestant religion, and presents the case on which the act of attainder was eventually rescinded.

LEITH, an important seaport, a municipal and parliamentary burgh of Scotland, on the southern shore of the firth of Forth, at the mouth of the water of Leith, 2 m. n. of Edinburgh, with which it is now connected by a continuous line of houses. Although not without many fine edifices, the town, as a whole, is rather mean in appearance, being irregular and dingy, especially in the older and central parts. The Trinity-house, custom-house, town-hall, royal exchange, corn exchange, and banks are really handsome buildings. Leith has one of the largest and most elegant flour-mills in the kingdom. West of the town, on the shore, is Leith fort, an artillery station. Leith is connected by branch-lines with the various railways centering in Edinburgh. The harbor extends, by means of two piers, upwards of a mile into the firth, and has a depth of from 20 to 25 ft. at high-water. There are four wet-docks, containing a floating area of 43 acres. The Edinburg dock, opened in 1881, has a quay frontage of 6,775 feet, is 1,500 feet long and 650 feet wide. Railway communication is continued from the various Leith stations throughout the quays, and to the extremity of the western pier, and has also been carried across the harbor by a superior iron swing-bridge. There are six graving-docks, one of them being 73 ft. wide at the entrance, and 450 ft. in length, with 24 ft. of water on the sill at spring-tides. The trade of the port is chiefly in colonial and foreign produce, but is also extensive in coal and iron exports. Grain, timber, and wine are among the leading imports. In 1840 the harbor dues were £26,000; in 1875 upwards of £74,000. In 1852 the tonnage of *arrivals* was 350,286, while in 1878 it was 962,375; and the tonnage of *sailings* shows a corresponding increase. In 1880 the imports of grain amounted to 3,383,091 cwts., those of flour to 795,460 bags. The fishing village of Newhaven is within the port. There is a daily market. Chief manufactures—ships, machinery, sail-cloth, ropes, ale, rectified spirits, soap, bottles, flour. Pop. '81, 59,485. Leith unites with Portobello and Musselburgh in sending a member to parliament.

LEITHA, an Austrian stream rising in Lower Austria, and flowing n.e. to join the Danube nearly along the frontier of Lower Austria and Hungary. Since the reorganization of the empire in 1867, it has become usual to speak of Hungary and the lands belonging to the Hungarian crown as *trans-leithan*, and the rest of the empire as *cis-leithan*—thus giving the stream a factitious importance.

LEI'THA (*ante*), a river in Austria, forming part of the western limit of Hungary, dividing it from Lower Austria. Flowing into the river Raab, a branch of the Danube, it forms an island on which is situated the market-town of Altenburg, in Hungary, 47 m. s.e. of Vienna. It rises at Haderswerth, between Cisleithania, in Lower Austria, and Transleithania, in Hungary, the etymology of their names being attributable to its vicinity. It makes its course along a valley of the Leitha mountains, which rise from 1500 to 2,000 ft. between it and the Neusiedler-See, passing through them into Hungary. It is a sluggish stream, its course lying among marshes and fertile plains. Its waters furnish an abundance of fish.

LEIT'MERITZ, or LITOMIERCZICZE, an old walled t. of Bohemia, on the right bank of the Elbe, 34 m. n.n.w. from Prague. One of the churches has a tower like a cup, a curious memorial of the fierce religious contest in the 15th c. as to the use of the cup by the laity in the Lord's supper. Much of the Bohemian glass is polished in Leitmeritz, and it has an active trade in corn, wine, fruit, and fish. Straw hats and chicory are

also among its articles of produce. It is celebrated for a kind of apple called the *Borsdorf*, which is sent in large quantities both to Berlin and St. Petersburg. Pop. '69, 10,023.

LEITNER, Gottlieb William, ph.d., b. at Pesth, Hungary, 1330. His father, a German physician, becoming involved in the revolution of 1849, went to Turkey, where Gottlieb, who had been well instructed in the classics, became master of the Turkish, Arabic, and modern Greek. He also learned English, French, and Italian at the British college in Malta, and was interpreter to the English commissariat during the Crimean war. After the war was over he went to London, was naturalized as a British subject, and accepted an appointment as professor of oriental languages and Mohammedan law in King's college. In 1864 he was appointed director of a college at Lahore, in the Punjab. In that country he founded many societies, schools, public libraries, and colleges, and established several newspapers, thus setting in play large influences for the enlightenment of the people. He organized the Punjab university upon a solid basis. He also found time to engage in the exploration of Thibet and the other countries n. of the Himalayas, discovering Dardistan, with its interesting group of languages. He also extended his philological researches to the languages of Cabool, Cashmere, and Badakhshan, and sent to the Vienna exposition an extensive collection of Central Asiatic antiquities. His principal works, besides numerous contributions to the collections of learned societies in England and upon the continent, are a *Philosophical Grammar of Arabic*, in the English, Urdu, and Arabic languages; *The Races of Turkey;* a *Comparative Grammar of the Dardu Languages; History, Songs, and Legends of Dardistan;* and *Græco-Buddhist Discoveries.*

LEI'TOMISCHL, or Leutomischel, a t. of Bohemia, 84 m. e.s.e. from Prague. It stands on the left bank of the Launcha, an affluent of the Elbe. A castle, erected in the 16th c., is esteemed one of the finest buildings of its kind in Bohemia. Leitomischl has manufactures of linen, and an active trade in corn, fish, and wine. Pop. '80, 7,308.

LEI'TRIM, a co. of the province of Connaught, in Ireland, which to the n. has a small coast-line on the bay of Donegal. Area 613 sq.m., or 392,363 acres, of which 249,350 are arable. The surface of Leitrim is irregular. It is divided into two parts by a considerable lake called Lough Allen. The southern division is broken up by low narrow ridges, which inclose numerous small lakes, the chief of which is called Lough Rinn. The more level portion of this division of the county forms part of the great limestone plain of Ireland, and contains some excellent arable and pasture land. The northern division is much more irregular in surface, being intersected by several ridges of considerable elevation. To the n. of Lough Allen the soil, except at rare intervals, is unfavorable for agriculture, and the climate is damp and ungenial. The principal crops are potatoes, oats, and hay; but, on the whole, the condition of the agriculture, considering the many inventions and improvements recently made, is not forward, the total number of acres under crops of all kinds having been, in 1877, 83,148. Leitrim, however, is more a grazing than a tillage district. Large quantities of horned cattle are raised in the southern division. The total number of cattle in 1877 was 93,266; of sheep, 13,717. Turf is abundant in all parts of the county. The pop. in 1881 numbered 89,795. Of these, 81,054 were Roman Catholics, 7,619 Protestants of the Episcopal church, and the rest Protestants of other denominations. The number of children attending national schools in 1880 was 24,392. The river Shannon (q. v.) enters this county near its source in Cavan, and traversing Lough Allen, passes out at the southern extremity of Leitrim. Of other rivers, the Bonnet, the Yellow river, and the Daff may be especially mentioned. The only towns of any note are Carrick-on-Shannon, Manor-Hamilton, and Mohill. The northern division of the county is more rich in minerals than most districts of Ireland. Coal is found in the Lough Allen basin, the chief working-beds being in the Slieve-an-Ierin mountains, where it is raised for smelting purposes. In the same district is found iron, the ore of the Arigna mines yielding as much as 58.2 per cent of metal. Lead ore is also abundant, although the mining operations have been discontinued. The occupation of the people being chiefly agricultural, there are hardly any manufactures.

Leitrim anciently formed part of the territory of Breifne O'Rourk. It was reduced to the English submission in the reign of Elizabeth, but revolted in 1588, submitting once more in 1603, when the O'Rourk accepted a patent of the residue of his estate. The confiscations which followed the great civil war may be said to have extinguished the native proprietary and the family of O'Rourk.

LE JEUNE, Paul, 1592–1664. He went to Canada in 1632, as first superior of the Jesuit missions, remaining in that position till 1639; and on his return to France was procurateur of foreign missions. He was editor of some of the Jesuit *Relations.*

LE KAIN, Henri Louis Cain, 1728–78; b. Paris. Voltaire was attracted to him by witnessing his early attempts in amateur representation, and procured for him an opportunity to appear in the Theatre Français, where he achieved a distinguished position in spite of great opposition, and faults which his genius at last overcame. He ranks among the most eminent French tragedians. His great *rôles* were in the tragedies of Voltaire. His *Mémoires* were reprinted in Paris under the direction of Talma in 1825.

LELAND, Charles Godfrey, b. Philadelphia, 1824. After graduating at Princeton in 1846, he traveled in Europe, and continued his studies at the universities of Heidelberg, Munich, and Paris. He was in the latter city during the outbreak in Feb., 1848, and joined the students of the Latin quarter behind the barricades. Returning to America the same year, he prepared for the bar, but concluded to devote himself to a literary career. He wrote at first for the periodicals, *Graham's*, *Sartain's*, and the *Knickerbocker* magazines, and edited the first of these at one time. He has made a study of the Gypsy or Rommany language and history, and of dialect writing. He has also obtained reputation as a German scholar. It is probable, however, that Mr. Leland's fame will rest chiefly on his work as a humorist, in which capacity he has contributed freely to American literature. He has published *Sketch-Book of Meister Karl*, 1855; *The Poetry and Mystery of Dreams*, 1855; *Pictures of Travel*, translated from the German of Heinrich Heine, 1855; *Heine's Book of Song; Sunshine in Thought*, 1862; *Legends of Birds*, 1864; *Hans Breitmann's Ballads*, 1867–70; *Poems*, 1871; *Egyptian Sketch-Book*, 1873; *English Gypsies and their Language*, 1873; *Fu-Sang*, 1874; and *English Gypsy Poetry*, 1875; the last being issued with the collaboration of Miss Janet Tuckey and prof. E. H. Palmer. Mr. Leland has also practiced journalism to some extent, having been employed on the editorial department of the Philadelphia *Press* and *Evening Bulletin*—and for a time as editor of *Vanity Fair*, a humorous and satirical weekly paper, published in New York during the rebellion. He resided in Europe and traveled extensively during a number of years prior to 1880, when he returned to Philadelphia. He has since published *The Minor Arts; Gypsies; Algonquin Legends of New England.*

LELAND, John, D.D., an English divine and apologist for Christianity, was b. at Wigan, in Lancashire, in 1691, became a dissenting minister in Dublin 1761, and first appeared as an author in 1733 by publishing a reply to Tindal's deistical work, *Christianity as Old as the Creation.* In 1737, appeared another apology, *The Divine Authority of the Old and New Testament asserted against the Unjust Aspersions and False Reasonings of a Book entitled "The Moral Philosopher."* As the learning displayed in these works was great, and the abilities considerable, the university of Aberdeen conferred on Leland the degree of D.D. His best work is *A View of the Principal Deistical Writers that have appeared in England.* It once held a high position in Christian apologetic literature, and many people still regard it as a satisfactory demolition of deism. Leland died in 1766. To his honor it should be added, that though his life was one of controversy, the spirit of fairness and charity never forsook him.

LELAND, John, 1754–1841; b. Grafton, Mass. He was baptized by immersion in 1774, and shortly afterwards licensed as a Baptist preacher. In 1775 he removed to Virginia, where, until 1791, with the exception of occasional visits to the north, he was earnestly engaged in the discharge of his professional duties. In 1792 he settled at Cheshire, Mass., which was thenceforth his home most of the time until his death. He preached in a great number of places, and is said to have baptized a larger number of persons than any of his contemporaries. He took the warmest interest in politics throughout his life, being a pronounced democrat and an enthusiastic admirer of Jefferson, and after that statesman became president of the United States, in 1801, he went to Washington to present to him a mammoth cheese, weighing 1450 lbs., as a testimonial of the esteem and confidence of the people of Cheshire. This event was much talked of at the time, being regarded as a fresh illustration of the famous preacher's eccentric character. Many of his sermons, like those of the preachers generally of that day in New England (who, unlike him, were mostly federalists), had a strong flavor of politics. He left an autobiography, which, together with additional notices of his life, and selections from his writings by Miss L. F. Green, was published in 1845.

LELAND, or LAYLONDE, John, 1500–52; b. England; having under the patronage of Thomas Myles studied ancient and modern languages at St. Paul's school with William Lilly as instructor, and at Cambridge and at Oxford, he pursued the same studies in Paris. In 1533, having filled the office of chaplain to Henry VIII., who gave him the rectory of Popeling, near Calais, and made him librarian, he was commissioned as his antiquary to explore the antiquities of the cathedrals, colleges, abbeys, and priories of his realm, receiving a stipend and a consideration for non-residence on his living. On his return in 1542 he was rewarded by Henry VIII. with the rectory of Hasely, in Oxfordshire, and a canonry of King's college, Oxford. In 1545, having lost his canonry by the surrender of that college to the king, he was awarded the prebend of East and West Knowle, in the church of Sarum. He was celebrated as a linguist and poet. In 1549 there appeared from his pen *A New Yeare's Gift to King Henry VIII. in the 37th Yeare of his Raygne.* During the preparation of his voluminous manuscripts he withdrew to his house in the parish of St. Michael le Querne, London. In 1709 his *Commentarii de Scriptoribus Brittanicis* appeared in 2 vols.; in 1710–12, *Itinerary of England*, 9 vols.; in 1715, *De Rebus Brittanicis Collectanea.* His manuscripts which descended from Humphrey Purefoy to Burton, the historian of Leicestershire, were deposited by him in the Bodleian library at Oxford; others that came into the possession of sir Robert Cotton, were placed in the British museum. He was associated with Nicholas Udall in preparing the English and Latin verses which were recited on the occasion of the coronation of Anne Boleyn. *Leland's Remains* were a convenient fund for Stowe, Camden,

Lambarde, Dugdale, and Burton to draw upon in their antiquarian works. He was buried in the church of St. Michael le Querne. For several years previous to his death his mind was disordered, the result of protracted and solitary study.

LELAND, Thomas, d.d., 1722–85; b. Ireland; educated at Trinity college, Dublin, where in 1763 he was elected professor of poetry. He published several works, the most prominent of which were translations of the *Orations of Demosthenes; History of the Life and Reign of Philip King of Macedon; Dissertation on the Principles of Human Eloquence;* a *History of Ireland;* several volumes of sermons, and a controversial work against bishop Warburton.

LELÉGES, a race which in ancient times peopled the islands of the Ægean, and is supposed to have been of Pelasgic origin. Authorities differ as to its exact identity, some having confused the Leléges with the Carians, with whom they are said to have united in support of the Trojans. Homer represents Altes, king of the Leléges, as having been the father-in-law of Priam. Pausanias considers Lelex, the founder of this race, to have been a foreigner from Egypt, and that he became king of Megara. According to this authority, the grandson of Lelex, Pylus by name, founded the city of Pylus in Messenia with a colony of Megarian Leléges. The last that is recorded of the Leléges is that they joined the Carians in colonizing the w. coast of Asia Minor.

LELEUX, Adolphe, b. at Paris, 1812; became an accomplished engraver and lithographer, and afterwards won distinction as a genre painter. His pictures represent with vivid force scenes of life in Brittany, northern Spain and Algeria, and in the streets of Paris during the revolution of 1848. His brother, Armand, b. in Paris in 1818, studied under Ingres and in Italy, but turned his attention to genre painting. He has a finer appreciation of picturesque scenes than his elder brother, but less humor and power of expression.

LELE'WELL, Joachim, 1786–1861; b. at Warsaw, Poland; studied at his native place and at Vilna; in 1809 was appointed professor of history at the lyceum of Kremenets in Volhynia, and at the university of Vilna in 1814. In 1824 he was dismissed upon suspicion of being engaged in secret revolutionary proceedings, and the next year was elected a member of the Polish diet. He was prominent as a leader in the Polish uprising of 1830, and when it failed, fled to France, where he lived three years, and was then banished for participation in several Polish conspiracies. He went to Brussels and devoted himself to science until his death. His scientific writings are extensive and of high value. Among his works is a *History of Poland*, greatly esteemed.

LELY, Sir Peter (Peter Vander Faes), was the son of one Vander Faes, a capt. of a regiment of infantry, who was generally called Le Capitaine du Lys, or Lely, from having been born at the Hague, in a house the front of which was decorated with a fleur-de-lis. Lely was born at Soest, in Westphalia, in 1618. His father placed him in the school of Peter Grebber, a painter of talent at Haarlem, where he remained two years. He commenced his career as a painter of landscapes and subjects from history; but his talent induced him to devote himself exclusively to portrait painting, and soon after the death of Van Dyck he settled in London. He was employed successively by Charles I., Cromwell, and Charles II., who nominated him court-painter, and conferred on him the honor of knighthood. He had great facility of execution, and his style, though deficient in all the higher qualities of art, was well suited for his position as the favorite portrait painter of such a court as that of his chief patron. There is a large collection of his portraits at Hampton court, well known to the numerous visitors of the public apartments there as the beauties of the court of Charles II. He died in London in 1680.

LEMAIRE, Nicolas Éloi, 1767–1832; b. France; became professor of rhetoric in Paris in 1790; was a warm advocate of the revolution; was deputy judge in 1793. He delivered improvisations in Latin in Italian cities, and is best known as the compiler of the *Bibliotheca Classica Latina*, in 154 vols., Paris, 1818.

LEMAITRE, Frédéric, 1798–1876; b. France; the son of professional actors. He studied for the stage at the conservatoire of Paris, and had the advantage of the sympathy and aid of the great Talma. His first appearance was made at the Odéon, but it was not until some time after that occasion, in 1826, that he became a member of the Odéon company. He did not remain permanently engaged in any theater, his taste and habit of mind leading him into a wandering life, and appeared sometimes at the Ambigu, sometimes at the Porte Saint-Martin, as occasion offered. It was in 1832 that he created the character of "Robert Macaire," in which he won immortal renown, being joint author of the play as well as the originator of the title *rôle*. He made a tour of England in 1835, achieving a marked success. His performance of the *Ruy Blas* of Victor Hugo became another of his triumphs, and this was followed by that of *Don Cæsar de Bazan*, which he produced at the Porte Saint-Martin with the result of nearly occasioning an *émeute*, for some reason, between the people and the police, troops having to be summoned and the theater closed for three days. At the outbreak in Paris of the revolution of 1848, Lemaître astounded the audience of the Porte Saint-Martin by rushing to the front of the stage, half-dressed, with a gun in his hand, and urging those in front of him to join their fellows in the street and "play a citizen-like part in the great drama, the epilogue of which must be the apotheosis of the people." In 1868, after

a number of years of absolute retirement from the stage on account of the death of his eldest son, Lemaître made a reappearance at the age of 70 years. This actor achieved his greatest reputation in strong character-parts, the mobility of his features, and the skill with which he grasped and elucidated marked and original traits, rendering him exceptionally qualified for this kind of personification.

LE'MAN, Lake. See Geneva, Lake of.

LE MANS. See Mans, *ante*.

LEM'BERG (formerly *Löwenburg*, "city of the lion;" i.e., of *Leo* Danielowicz, prince of Halicz, who founded it in 1259; Polish name, "Llwów"), the capital of the Austrian kingdom of Galicia and Lodomeria, is situated on a small stream called the Peltew, in a narrow basin among hills. Lat. 49° 50′ n., long. 24° east. Pop. '80, 109,746, of whom a great number are Jews. Lemberg is the seat of a Roman Catholic, a Greek United, and an Armenian archbishop, and has 29 (it once had 50) churches. It is one of the finest towns in Austria, yet the houses are for the most part roofed with shingle. The synagogues, in particular, are very beautiful. The university (*Alma Franciscea*), founded in 1784, had in 1872 46 professors and 1031 students. The university library contains 55,000 volumes, 350 MSS., and a collection of coins amounting to 10,000. Here also is the seat of the institute founded by Ossolinski, with a library of 62,000 volumes, and 1200 MSS., chiefly of Polish literature. The trade and manufactures of Lemberg are of great importance. The town is now regularly fortified.

LÉMERY, Nicolas, 1645–1715; b. at Rouen; studied pharmacy in Montpellier, Paris, and elsewhere, and became a lecturer on chemistry, drawing great crowds by his fascinating expositions of the subject and his freedom from the popular absurdities long associated with the science. He belonged to the Reformed church, and thus became involved in troubles, from which he sought exemption in England. He was well received by Charles II., to whom he presented a copy of the 5th edition of his *Cours de Chimie*, published in 1675. It was not long, however, before the political troubles of England induced him to return to Paris, and, after the revocation of the edict of Nantes, when he had lost his right of practicing as an apothecary and physician, he united himself with the Roman Catholic church and renewed his former vocation of lecturer and writer.

LEM'HI, a co. in central Idaho, having the Bitter Root range of the Rocky mountains for its n. and e. boundary, separating it from Montana territory, is watered by Lemhi river, Rock creek and North Fork, tributaries of the Salmon river, which runs n.w., entering the Snake river; about 2,000 sq.m.; pop.'80, 2,230—262 Chinese. In the s.e. portion is the Lemhi Indian reservation. Its surface is mountainous, with a few fertile valleys which yield the products of the dairy, furnish good pasturage, and present scenery of wonderful grandeur and beauty. Gold placer mining is the principal occupation of the inhabitants. It had in '70, 7 gold placer mines, employing 64 men, with a capital of $42,750 and a product of $113,000. It had also one gold quartz mine, with a capital of $3,000 and a product of $5,000. Seat of justice, Salmon City.

LEMMA (Gr. a thing assumed), a preparatory proposition introduced for the purpose of rendering the demonstration of a theorem or construction of a problem more perspicuous. The term is confined to the science of mathematics.

LEMMING, *Lemmus* or *georychus*, a genus of rodent quadrupeds, of the family *muridæ*, and sub-family *arvicolidæ*, nearly allied to voles, but differing from them in the extreme shortness of the ears and tail, and in having larger and stronger claws, more adapted for digging. They are also more heavily formed. The most noted species is the Scandinavian lemming (*L.* or *G. Norvegicus*), an animal of about 5 in. long, with variegated black and tawny fur, an inhabitant of the northern Scandinavian mountains, where it ordinarily feeds on reindeer-moss and other lichens, grass, catkins of birch, etc. But, breeding often in the course of a year, and producing four or five at a birth, it multiplies so much that periodically vast troops leave their native regions, migrating either toward the Atlantic ocean or the gulf of Bothnia. Bears, wolves, foxes, lynxes, follow and prey upon them. Hawks and owls also attend and contribute to the diminution of their numbers. It is said that those which survive, after spending a winter in the region to which they have migrated, seek to find their way back to their original abode. In times of prevalent superstition lemmings were often exorcised by the priests, and the peasantry of Norway supposed them to fall from the clouds. The Laplanders eat the lemming.

LEMNIAN EARTH, a mineral found in the island of Lemnos; massive, chalk-like, soft, yellowish gray, or whitish, and falling to powder in water. It consists of about 66 per cent silica, with 14 of alumina, and a little oxide of iron, soda, and water. It long had a great and undeserved reputation in medicine, and being sold in little pieces, each stamped with a particular stamp, it acquired the name of *terra sigillata* (sealed earth). The belief in its medicinal power is of very great antiquity. The stamp in ancient times, Galen says, was the head of Diana, the tutelary goddess of Lemnos; but is now only the Turkish name of the mineral. The ancients had more than one legend respecting the discovery of the virtues of Lemnian earth.

LEM'NOS (now commonly called *Stalimne*), an island in the northern part of the Greeian Arehipelago, about 40 m. w. of the entrance to the Dardanelles. It is irregular in shape, and is nearly divided into two islands, by two deep bays—port Paradise on the n., and port St. Antony on the south. Area, 150 sq. miles. Pop. about 12,000. The woman are famed for their beauty. It is hilly, rather bare of wood, and bears unmistakable traees of voleanie action at an early period, which fact probably originated the ancient myth of Vulean lighting on this island when Jupiter hurled him from heaven. Mosehylos, a volcano, no longer active, was believed to be the workshop and favorite residenee of this deity. The principal produet of Lemnos is the *Lemnian earth* (q.v.), used in ancient times as a cure for wounds and serpent-bites, and still highly valued by both Turks and Greeks. The chief town, Kastron (on the site of the ancient *Myrina*), has a pop. of 2,000. It furnishes excellent sailors.

LEMOINE. See Le Moyne.

LEMOINNE, John Emile, b. 1814, of French parents, in London. At the age of 26 he beeame known through the *Journal des Débats* as the English eorrespondent from London. His enlarged views in politics, sagaeity of judgment, and refinement of style soon made him one of the eminent writers of his time. He was a determined opponent of the Freneh intervention in the affairs of Italy, and of the reactionary despotism of Louis Napoleon. It was through his influence, in conjunetion with the eminent financier M. Leon Say, that the *Journal des Débats* changed from a semi-monarehie to a frankly republican journal. At the beginning of the tentative administration of M. Thiers his pen was among the most trenehant of weapons against the various heads of the monarchic hydra that were ineessantly voieing their fears of the republie. Though the bulk of M. Lemoinne's work has been journalistie, he has written a large number of pamphlets on a great variety of subjeets, mostly politieal, whieh have had a wide reading both in Franee and England. A sheaf of some of these is entitled *D'Études Biographiques et Critiques*, published in 1862. He has been one of the regular contributors to the *Revue des Deux Mondes*, and editor of the *Journal des Débats*.

LEMON, *Citrus limonum*, a tree which has by many botanists been regarded as a variety of the citron (q.v.), and, like it, a native of the n. of India. Its leave are ovate or oblong, usually serrulate, pale green, with a winged stalk; the flowers are streaked and reddish on the outside; the fruit is oblong, wrinkled or furrowed, pale yellow, with generally coneave oil-eysts in the rind. In the common variety, whieh is very extensively cultivated in many tropical and sub-tropical eountries, the pulp of the fruit is very acid, abounding in eitrie acid. There is, however, a variety ealled the sweet lemon, oeasionally eultivated in the s. of Europe, of whieh the juiee is sweet. It is *citrus lumia* of some botanists, and has both eoneave and eonvex oil-eysts in the rind. The acid juice of the common lemon is much used in the preparation of the well-known cooling beverage called *lemonade*, and is also administered in various forms in febrile and seorbutic eomplaints. It is mueh used by calico-printers to discharge eolors, to produee greater elearness in the white part of patterns, dyed with dyes containing iron. As a preventive of sea-scurvy, it is an important article of sea-stores. Citrie aeid and lemon-juiee are likewise made from it in great quantities. The rind of the fruit (*lemon-peel*), separated from the pulp, and kept in a dried state, is a grateful stomaehic, and is mueh used for flavoring. The produee of the lemon-groves of Italy, the Tyrol, Spain, Portugal, the s. of Franee, and other countries bordering on the Mediterranean sea, is largely exported to more northern regions. Sieily alone exports annually 30,000 ehests, eaeh eontaining 440 lemons. The lemon-tree is very fruitful; it is more hardy than the orange, and in some parts of the s. of England produees very good erops, being trained to a wall, and proteeted by a movable frame in winter.—The lemon is supposed to have been introduced into Europe during the Crusades. It is almost naturalized in the s. of Europe. It is so eompletely naturalized in some parts of the s. of Brazil, that the flesh of the cattle whieh pasture in the woods acquires a strong smell of lemons, cattle being very fond of the fallen fruit.

LEMON, Mark, 1809–70; b. London; educated at the grammar-school, Cheam, Surrey; a versatile and fertile writer, who for many years eontributed freely to the *Illustrated London News*, Diekens's *Household Words*, and other London periodieals; but who is best known from having been the editor of *Punch* in eonnection with Horace Mayhew for the first two years of its publication, and sole editor from 1843 to the time of his death. He was the author of more than sixty dramatic pieces, of whieh *The School for Tigers* and *The Serious Family* are still popular. He wrote also the following books: *The Enchanted Doll* (1849); *A Christmas Hamper* (1859); *Wait for the End* (1863); *Loved at Last* (1864); *Falkner Lyle* (1866); and other novels. He was for a long time literary editor of the *Illustrated London News;* assisted Charles Diekens in the editorial management of *Household Words;* and achieved a eonsiderable reputation as a song-writer.

LEMONADE is formed by adding two lemons sliced, and 2 ounces of white sugar, to a quart of boiling water, and digesting till cold. It is a useful drink for allaying thirst, and as a refrigerant in febrile and inflammatory complaints, and in hemorrhage, in which cases it should be given iced.

LEMON-GRASS, *Andropogon schœnanthus*, a beautiful perennial grass, 3 or 4 ft. high, with panicle mostly leaning to one side, and spikelets in pairs, or, if terminal, in threes. It is a native of India, Arabia, etc., and is extremely abundant in many places. It has a strong lemon-like fragrance, oppressive where the grass abounds. It is too coarse to be eaten by cattle except when young, and is therefore often burned down. Europeans in India make an agreeable stomachic and tonic tea of the fresh leaves. By distillation, an essential oil is obtained (*lemon-grass oil*), which is employed externally as a stimulant in rheumatic affections, and is yellow, with a strong lemon-like smell. This oil is used in perfumery, and is often called *oil of verbena* by perfumers. Lemon-grass has been introduced into the West Indies, Australia, etc. See also Grass Oil.

LEMON-JUICE is a somewhat opaque, very sour liquid, obtained from lemons by expression and straining. Its acidity is due to the presence of citric and a little malic acid. Its principal uses in medicine are the following: 1. As an anti-scorbutic.—"Those only," says sir Gilbert Blane, "who have made themselves acquainted with the early part of the naval history of this country, can duly appreciate the value of this simple remedy." Its active principle, citric acid, is now frequently substituted for it. 2. In rheumatism.—Dr. G. O. Rees, who first employed it in this disease, "considers the citric acid to undergo changes in the stomach, and to supply oxygen to such elements as tend to produce uric acid, and thereby to induce the formation of urea and carbonic acid instead." 3. In the formation of effervescing draughts.—A scruple of bicarbonate of potash in solution, mixed with about 3 drams and a half of lemon-juice, so as to form a citrate of potash, forms an excellent effervescent draught; it acts as a mild diaphoretic and diuretic, tends to allay febrile disturbance, and serves to check nausea and vomiting. If the object is specially to determine to the skin, a draught composed of a scruple of sesquicarbonate of ammonia in solution, with 6 drams of lemon-juice, so as to form a citrate of ammonia, is preferable. Effervescing draughts are often employed as agreeable vehicles for the exhibition of other remedies.

LE MONNIER, Pierre Charles, 1715–99; b. France; son of Pierre Le Monnier, a French astronomer and professor of philosophy in the college d'Harcourt; having inherited a love for the study of astronomy, and having proved his aptitude by drawing a correct map of the moon, which he presented to the academy of sciences, was elected a member of that society, as adjunct geometrician, and in the following year was associated with Maupertuis and Clairaut, at Tornea, in measuring a degree of the meridian in Lapland, within the polar circle. He favored the introduction of the methods of Flamsteed, and the superior astronomical instruments of the English. In 1742, by the bounty of the king, to whom he was introduced by the duc de Noailles, he occupied apartments at the Capucins, rue St. Honoré, and held them till the revolution; he also received a royal present of 15,000 livres, in acknowledgment of his services in fixing an accurate meridian at St. Sulpice. From 1732 to 1741 he was engaged in determining the sun's greatest equation, which in the latter year he found amounted to 1° 55′ 31″. In 1739 he was elected honorary member of the royal society of London, and for 12 years was its senior member. In 1741 he published *Histoire Céleste*. In 1746 and 1748 he made some successful telescopic observations in relation to the planets Jupiter and Saturn, and an eclipse of the sun. He held the chair of professor of physics in the college of France for many years. In 1746 he published *Institutions Astronomiques*, an elementary work. In 1748 he went to England, and thence to Aberdour, in Fifeshire, Scotland, with the earl of Morton to observe the solar eclipse. In 1771 he published *Nautical Astronomy*, and various treatises on navigation, magnetism, and the variations of the compass, etc. For 50 years his contributions appeared in successive annual publications of the memoirs of the academy. The celebrated Lalande was his pupil. From the year 1791 to his death he suffered from the effects of a paralytic attack. He was one of the 144 original members of the national institute. In 1763 he married Mlle. de Cussy of Normandy, and had three daughters, all of whom married, and the second became the celebrated Lagrange. He was buried at Héric, near Bayeux.

LEMONS, Oil or Essence of, is extracted from the minute cells which are visible on the rind of the lemon, by submitting raspings of the fruit to pressure in hair sacs. It may also be obtained by distilling the peel with water; but its flavor, when obtained in this way, is less agreeable, although the oil itself is purer, owing to the absence of mucilaginous matter. The distilled oil is sold under the name of *scouring-drops*, for removing grease-spots from silks and other fabrics. Pure oil of lemons is mainly composed of a hydrocarbon, *citren* or *citronyl*, $C_{10}H_8$, which is consequently isometric with oil of turpentine, with which it is often adulterated. It is principally used for the purpose of communicating an agreeable odor to other medicines, although it is sometimes taken in the dose of two or three drops on sugar as a carminative. From its agreeable scent, it is often added to evaporating lotions and to ointments.

LEMONS, Salt of, a name commonly but improperly applied by druggists to binoxalate of potash mixed with a little of the quadroxalate. This mixture occurs in the *oxalis acetocella*, and hence it has been designated *salt of sorrel*. It is employed in taking out ink-spots.

LE MOYNE, Antoine, Sieur de Châteauguay, 1683–1747; b. Montreal; son of Charles; an officer in the French army; accompanied a colony of French to Louisiana in 1704; served under his brother Iberville in campaigns against the English at the n. in 1705–6; commander of the French troops in Louisiana in 1717; commander of the fort at Pensacola in 1719; in command at Mobile soon after; governor of Martinique in 1727. He returned to France in 1744, and became governor of Isle Royal or Cape Breton.

LE MOYNE, Charles, 1625–83; b. Normandy; an early French colonist in Canada; distinguished himself as an Indian fighter in wars with the Iroquois, and for his services was ennobled by Louis XIV. in 1668, and made seigneur de Longueil and Châteauguay; afterwards for many years captain of Montreal, where he died.

LE MOYNE, Charles, Baron de Longueil, 1656–1729; b. Montreal; son of Charles. Distinguished for participation in the government of Canada, in promoting its colonization, in preparing its defense against the English in 1711, and obtaining the concession from the Iroquois to rebuild fort Niagara in 1726.

LE MOYNE, Jacques, Sieur de Sainte Hélène, 1669–90; son of Charles; an officer in the French-Canadian service, until his death in 1690.

LE MOYNE, Jean Baptiste. See Bienville.

LE MOYNE, Joseph, Sieur de Sevigny, 1668–1734; b. Montreal; son of Charles. In 1694–97, he commanded a French fleet sent to act against the English on Hudson's bay in conjunction with his brother Iberville; afterwards commander of a squadron carrying colonists to form a settlement in Louisiana; surveyed the gulf coast in 1718–19; aided in the capture of Pensacola from the Spaniards in 1719, and repulsed them from Dauphin island the same year. In 1723 was made governor of Rochefort, France, and remained in that position till his death.

LE MOYNE, Paul, Sieur de Maricourt, 1668–1704; son of Charles; an officer in the French-Canadian service; of large influence with the Indian nations, against whom in war his services were important.

LE MOYNE, Pierre. See Iberville.

LEMPA, a river in San Salvador, a division of Central America, rising in a valley of Guatemala, and flowing e.s.e.; is an outlet for lake Guijar, and making its way through a volcanic range of mountains, forms a part of the n. boundary of San Salvador, separating it from Honduras and dividing its e. section, empties into the Pacific ocean at San Maria, 210 m. from its source. It traverses the departments of Sonsonate and Cuscatlan forming the e. boundary of San Vicente and La Paz, and the w. boundary of San Miguel. It has broad valleys, with a productive alluvial soil, and for the most part well populated. Some portions are subject to a sudden rise of from 20 to 35 ft., which floods the adjacent country. It is navigable for a considerable distance from its mouth, which is obstructed by a bar, but is connected with the estuary of Jaltepeque by a narrow strait, about 3 m. in length, navigable for part of the year by small boats. It is the largest river on the Pacific coast of Central America.

LEMPRIERE, John, D.D., b. in Jersey about 1760, was educated at Westminster school and Pembroke college, Oxford, and d. Feb. 1, 1824. His name was once well known to every classical student in the British empire, but the rising generation is forgetting it, and it will soon become *vox et præterea nihil.* Lempriere's *Classical Dictionary* (Bibliotheca Classica, 1788) was for many years the standard work of reference in England on all matters of ancient mythology, biography, and geography. To elderly scholars, the name will call up many pleasant memories of years long gone by; but the book itself ceased to possess any intrinsic value after the publication of the magnificent classical dictionaries edited by Dr. William Smith, 1842–53. Another work of Lempriere's was *Universal Biography* (Lond. 1808).

LEMUR, a genus of mammalia which gives its name to the family *lemuridæ*, a family allied to monkeys, and, like them, quadrumanous, having on each of the four extremities a well-developed thumb opposed to the fingers, but in other respects exhibiting an approach to the ordinary quadrupedal type. The general form is slender and elongated, the muzzle pointed, the eyes large, the ears very small, the hind limbs longer and larger than the fore limbs. The molar teeth are furnished with pointed tubercles fitting into each other, as in *insectivora*, and the whole dentition of many of the family is adapted to animal rather than vegetable food. All the *lemuridæ* are natives of the warm parts of the old world, and live chiefly in forests, most of them climbing trees with all the agility of monkeys. The name lemur (Lat. *lemur*, a ghost) is allusive to their rapid and peculiar noiseless movements. They are graceful and beautiful creatures, and generally gentle and easily tamed; but they have neither the prying and mischievous dispositions, nor the intelligence of monkeys. The species of the genus lemur, as now restricted, are all natives of Madagascar. They are gregarious, and their food consists partly of fruits. The names *maki* and *macauco* are given to some of them, and sometimes extended to all. The largest species is about the size of a large cat. To the lemur family belong also the loris, indris, galagos, and tarsiers.

LEMURES, the general designation given by the Romans to all spirits of departed persons, of whom the good were honored as lares (q.v.), and the bad (larvæ) were feared,

as ghosts or specters still are by the superstitious. Like the latter, they were said to wander about during the night, seeking for an opportunity of inflicting injury on the living. The festival called *lemuria* was held on May 9, 11, and 13, and was accompanied with ceremonies of washing hands, throwing black beans over the head, etc., and the pronunciation nine times of these words: "Begone, you specters of the house!" which deprived the lemures of their power to harm. Ovid describes the lemuria in the fifth book of his *Fasti.*

LEMU'RIA, a name given by certain geologists and anthropologists to a supposititious or lost continent. Such a continent, it is claimed, existed in a distant, yet not extremely remote geologic age. The position assigned it is in the Indian ocean, beneath the waters of which imagination sees it submerged; and attempts have even been made to define its bounds. The derivation of the name is from the Latin *lemur*, a specter, used by scientists to designate a genus of mammalia common in Madagascar and adjacent regions. The name was first bestowed by Sclater. The argument for the existence of such a land is mostly of an *à priori* kind, though some positive geological evidence exists. The belief is more especially accepted by some of the upholders of the monogenist theory of the propagation of the human species, as offering a plausible locality for the nativity of the first parents of mankind. Many otherwise difficult problems, both ethnological and geological, may be readily solved by taking for granted the existence of Lemuria. Thus, sir John Lubbock, in his *Prehistoric Times*, claims that the present position of the Negroid races of Africa is explicable only on the hypothesis that, since their first appearance, immense geographical changes have taken place; that there must have been a very large tract of land, or perhaps a great chain of islands, stretching from the e. coast of Africa across the Indian ocean, while that sea was then covering the great African deserts.

On the whole, while the former existence of extensive tracts of land in the region is extremely probable, it cannot as yet be accepted as proven, however convenient it might be as a universal depository of "missing links."

LEMURINÆ, a sub-family of *lemuridæ* (q.v.), including the genera *lemur*, *hapalemur*, and *lepilemur*. They have woolly fur, long tails, and fox-like muzzles. There are many species, having a great variety of color and arrangement of fur, as the ruffed lemur and the white-ruffed lemur. They are very common animals in menageries, and do not pine in confinement. They are exclusively natives of Madagascar. The lepilemur is the only genus having a tail shorter than the body. When reposing, the members of this family roll themselves up into a ball, winding the tail around the body. They are great leapers.

LE'NA, an important river of Eastern Siberia, rises amid the mountains on the n.w. shore of lake Baikal, in the government of Irkutsk, flows first in a north-eastern direction to the town of Jakutsk, then n. to the Arctic ocean, into which it falls by several mouths. Its course is 3,000 m. in length, and its chief affluents are the Vilui on the left, and the Vitim, the Olekma, and the Aldan on the right. Navigation on the Lena is open from May till November. During spring, the waters of the river regularly overflow their banks. Near the town of Jakutsk, the breadth of the river is 6½ miles. Lena is the principal artery of the trade of Eastern Siberia. Russian and Chinese goods, as well as Siberian furs, furnished by the natives, are exported from this river. The chief harbors on the river are Olekminsk, Jakutsk, and Kachugsk, where £50,000 worth of goods from Irkutsk are shipped annually.

LEN'APES. See DELAWARE INDIANS.

LENAU, NIKOLAUS, 1802–50; b. Hungary; his family name was NIEMBSCH VON STREHLENAU; he was educated at the university of Vienna, and afterwards studied law and medicine. He visited the United States in 1832, and about the same time published in German a collection of lyric poetry which met with general public favor. In 1844, when about to be married, he became insane, and was placed in an asylum, where he remained until the period of his death. He wrote the drama of *Faust* (1835); two epic poems—*Savonarola* (1837) and *Die Albigenser* (1842); and a drama, *Don Juan* (1851), which was his favorite. His complete works were published in Stuttgart in 1855 and 1870.

LEN'AWEE, a co. in s. Michigan, having the state line of Ohio for its s. boundary; is drained by the head waters of the Raisin and Macon rivers, Bear creek, emptying into the Raisin, and Bean creek or Tiffin river, flowing over the border into Ohio; 720 sq.m.; pop. '80, 48,343. Its surface is rolling, and well timbered. Its soil is a dark, rich, sandy loam, productive of tobacco and dairy products. It produced in '70, 1,467,408 lbs. of butter and 11,983 lbs. of honey; other products are sorghum, maple-sugar, flax, hops, fruit, and every variety of grain. Value of all live stock in '70, $2,897,101. Cash value of farms in '70, $21,158,168, numbering 4,312. It had in '80, 348 manufacturing establishments, with a capital of $1,683,588, and a product of $2,636,748, including manufactories of agricultural implements, brick, cars, iron castings, machinery, cheese, cooperage, carriages; also, breweries, tanneries, currying establishments, and planing, flour and saw mills. It is intersected by the Chicago and Canada Southern railroad, the Lake Shore and Michigan Southern, and the Jackson and Monroe branches of the Lake Shore and Michigan Southern. Seat of justice Adrian.

LEN'CAS, a tribe of Honduras Indians, numbering about 40,000, and occupying a range of table-lands near Comayagua, the capital of Honduras. They are a courageous, but perfectly peaceful tribe, hard-working and economical, and, like all mountaineers, passionately attached to their country. Their language appears to consist of dialects of a tongue which must once have been widespread through Central America and Mexico, and which is termed *Chontal*, meaning simply exotic or barbarous.

L'ENCLOS, NINON DE. See NINON DE LENCLOS, *ante*

LENCZI'ZA, an ancient Polish t., in the government of Kalisz, about 90 m. w.s.w. of the city of Warsaw. It contains the ruins of a castle of Kazimir II., erected in 1180. Pop. '80, 5,550, half of whom are Germans and Jews. Linen and woolen cloths and soap are manufactured.

L'ENFANT, PIERRE CHARLES, 1755–1825; b. France; came to America with Lafayette in 1777, and served in the revolutionary war as an officer of engineers. He was promoted to a captaincy in 1778, and wounded at the siege of Savannah; was afterwards made maj., and acted as engineer at fort Mifflin in 1794. He drew the plans for the city of Washington and for some of the public buildings there. In 1812 he declined an appointment as professor of engineering at West Point. Died in Maryland.

LENKORAN, a Russian seaport on the Caspian sea, and a district t. in the government of Baku, in the Caucasus, in lat. 38° 46', is a place of great importance for the trade between Russia and Persia; but a defective harbor and the vicinity of warlike tribes have hitherto rendered its natural advantages of little avail. Pop. '80, 5,320.

LENNEP, a t. of Rhenish Prussia, 22 m. e.s.e. from Düsseldorf, in a beautiful valley on the Lennep, an affluent of the Rhine. It is a principal seat of the woolen manufacture, and the cotton manufacture is also carried on. Pop. '80, 8,077.

LENNEP, JAN DANIEL VAN, a Dutch philologist, was b. at Leeuwarden, in the province of Friesland, in 1724, and studied at Franeker and Leyden. In 1752 he was appointed professor of ancient languages at Groningen, and fifteen years afterwards at Franeker. He died in 1771. The works which principally obtained him a reputation for learning and acuteness are his *Etymologicum Linguæ Græcæ* and his *De Analogiâ Linguæ Græcæ*, both of which were posthumously published. The progress of etymological science, however, has rendered them useless.—DAVID JACOB VAN LENNEP, a member of the same family as the preceding, was b. at Amsterdam, July 15, 1774, devoted himself to the study of philology, and ultimately became professor of rhetoric at Leyden. He died Feb. 10, 1853. Besides being one of the best Latinists among his countrymen, he wrote several exquisite pieces of poetry in his mother-tongue. His principal writings are *Carmina Juvenilia* (Amst. 1791), *Exercitationes Juris* (Leyd. 1796), valuable annotated editions of some of the classic authors, and a metrical Dutch translation of the *Works and Days* of Hesiod (Amst. 1823).—His son, JACOB VAN LENNEP, b. at Amsterdam, Mar. 25, 1802, is proudly called by his countrymen the "Walter Scott of Holland." Educated for the law, he passed as a barrister, and soon achieved a great reputation for legal knowledge. Yet without neglecting his extensive practice, he for more than thirty years cultivated literature with untiring assiduity, and, considering the drudgery of his professional work, with astonishing success. Lennep first appeared as an author shortly before 1830, in a work entitled *Vaderlandsche Legenden* (National Legends). Since then his most popular works have been the comedies, *Het Dorp aan die Grenzen* (The Frontier Village, 1830), *Het Dorp over die Grenzen* (The Village over the Frontier, 1830), and the novels, *Onze Voorouders* (Our Forefathers), *De Roos van Dekama* (The Rose of Dekama, 1837—English by Woodley, 1847), and *De Pleegzoon* (The Adopted Son—English by Hoskins, New York, 1847). Lennep, who possessed a remarkable knowledge of the English language and literature, has translated into Dutch some of Shakespeare's finest plays, and of Byron, Southey, and Tennyson's poems. A complete edition of his dramatic works, comprising tragedies, comedies, and operas, appeared at Amsterdam in 1852–55. He was engaged for several years on an edition of the great Dutch poet Vondel. He died Aug. 25, 1868.

LENNOX, a co. in e. Ontario, Canada, having for its s.e. boundary the bay of Quinte, an estuary on the n. of Prince Edward's co., s.w. of the point where the St. Lawrence leaves the e. portion of lake Ontario; 315 sq.m.; pop. '81, 16,314. Its surface is drained by the Napanee and other small rivers, and is diversified by low hills, fertile valleys, plains, and well-timbered land. Its water-power is utilized by paper-mills and other factories, and its county seat is a port of entry. Its soil, founded on a sub-stratum of limestone, is very fertile, and every variety of grain is raised. It is intersected centrally by the Grand Trunk railway, crossing the river Napanee. The co. of Addington on the e. and Amherst island directly s. of, and belonging to, that co., are included in the same riding. Seat of justice, Napanee.

LENNOX, CHARLOTTE, 1720–1804; daughter of lieut.gov. Ramsay of New York. At the age of fifteen she went to London and devoted herself thenceforward to literary pursuits. She wrote novels, verses, pastorals, and several translations from the French. *The Female Quixote*, an imitation of *Don Quixote*, satirizing the French romances of the 17th c., had for a time a considerable vogue. It appeared in two volumes in 1752. Miss Lennox was on terms of intimacy with Richardson the novelist, and with Dr. Johnson; the latter wrote the dedication for her *Shakespeare Illustrated*.

LENNOX, William Pitt, Lord, b. 1799; fourth son of the fourth duke of Richmond, and godson of William Pitt. He was educated at Westminster, and having entered the army served for several years upon the staff of the duke of Wellington. He was also a voluminous contributor to magazines and newspapers. Among his works are: *Compton Audley; The Tuft-Hunter; Percy Hamilton; Philip Courtney; Merrie England; Recreations of a Sportsman; Fifty Years' Biographical Reminiscences; Adventures of a Man of Family;* and *Drafts on my Memory.* He d. 1881.

LENNOX. See Dumbartonshire, *ante.*

LENNOX, Earls and Dukes of. See Stewart, The Family of, *ante.*

LEN'NOXTOWN, a village of Stirlingshire, Scotland, is situated in a picturesque district on Glazert water, at the terminus of the Campsie railway, 11 m. n.n.e. of Glasgow. It contains, '71, 3,917 inhabitants, employed chiefly in the print-works and alum-works in the immediate neighborhood.

LENOCI'NIUM is a term borrowed from the canon law, and used in English, but more frequently in Scotch, law to denote a husband's connivance in his wife's adultery. The wife can set up such defense to a suit for divorce, on the ground of her adultery so procured.

LENOIR, a co. in s.e. North Carolina, drained by the navigable Neuse river emptying into Pamlico sound, and by the Trent rising in it and emptying into the estuary of the Neuse at Newbern; about 430 sq.m.; pop. '80, 15,344—15,328 of American birth, 8,067 colored. It has a level surface partially covered with pine and other evergreen trees. It has a sandy but fertile soil, producing rice, flax, sweet potatoes, tobacco, cotton, fruit, sorghum, and every variety of grain; cattle, sheep, and swine are raised. It produced in '70, 11,712 lbs. of honey. Cash value of farms in '70, $731,917, numbering 641. It is intersected by the Atlantic and North Carolina railroad, Morehead City to Goldsboro'. Its manufactories include turpentine distilleries, flour and saw mills; and its county seat is a shipping place for thousands of bales of cotton annually. Seat of justice, Kinston.

LENOIR, William, 1751–1839, b. Brunswick co., Va., but removed in childhood to North Carolina, where he took an active part in the campaigns against the British and the Tories. For 60 years he held the office of justice of the peace, served frequently in both branches of the legislature, for five years was president of the senate, then president of the council, and in the later years of his life maj.gen. of the state militia.

LENORMAND, Marie Anne Adelaide, 1772–1843; b. Alençon, of respectable but poor family, and for some time was a seamstress; in 1790 went to Paris, where she was a saleswoman in a linen shop; in 1793 entered into partnership with Mme. Gilbert and a baker's boy for carrying on fortune-telling. On complaint to the police she was arrested and imprisoned for several months. But this increased her popularity, and after her release she opened a "cabinet of divining," and for 40 years she was visited by people of all ranks, even by the court of Napoleon. The allied sovereigns who were assembled at Aix-la-Chapelle, especially the emperor Alexander, paid her great attention. In 1809 she was arrested on account of "indiscreet revelations," and again in 1821 for sentiments contained in a book called *La Sibylle au Congrès d'Aix la Chapelle.* She became rich, but died in obscurity. None of her publications were of importance except *Souvenirs de la Belgique; Cent Jours d'Informe;* and *Mémoires historique et sécrets de l'impératrice Joséphine.*

LENORMANT, Charles, 1802–1859, b. Paris; studied law, but visiting Italy became specially interested in antiquities; was made inspector of fine arts in 1825; accompanied the younger Champollion to Egypt in 1828. Returning to Paris he held important positions in connection with art and archæology; was professor in the Sorbonne in 1835, but resigned on account of his ultramontane views. He was afterwards made professor of Egyptology in the college de France. He published *Des Artistes contemporains,* 2 vols.; *Élite des Monuments céramo-graphiques,* 4 vols.; *Trésor de Numismatique et de Glyptique,* 5 vols.; *Introduction à l'Histoire orientale; Musée des Antiquités Egyptiennes; Questions historiques.* He was a member of the commission for exploring the Morea, and was for some time editor of the *Correspondant* magazine.

*LENORMANT, François, son of Charles; b. Paris, 1837; educated by his father; made at an early age archæological and numismatic researches under the direction of his father; took in 1857 the numismatic prize awarded by the academy of inscriptions; made archæological tours in Germany, Italy, Egypt, Greece, and Turkey. The massacres of the Christians in Syria in 1860 occurring when he was there on an official mission, he sent an account of them in letters to the Paris newspapers, which were subsequently reprinted under the title of *Une Persécution du Christianisme en* 1860; *les derniers Événements de Syria.* He made during that year important excavations at Eleusis; was sent in 1866 as a member of a scientific commission to observe the volcanic phenomena of the island of Santorin; was appointed professor of archæology in the *Bibliothéke Nationale.* He was a volunteer in the 9th regiment of the national guard of Paris during its siege, and was wounded at Buzenval. He attended the congress of orientalists in Florence in 1878; was editor of the *Moniteur des Architectes* 1869–72; and with M. de Witte founded the *Gazette Archéologique.* His contributions to antiquarian periodicals,

French and foreign, are very numerous. Some of his most important works are *Manuel d'Histoire Ancienne de l'Orient; Histoire des Peuples Orientaux et de l'Inde; Lettres Assyriologiques et épigraphiques*, 2 vols.; *Études Accadiennes: Les premières civilisations.* D. 1883. See *Supp.*, page 898.

LENOX, a t. in w. Massachusetts, incorporated in 1767, and named in honor of the duke of Richmond, is surrounded by beautiful scenery, has been the home of many prominent families of Massachusetts and New York, and the summer residence of their eminent citizens; pop. '80, 2,043. It is situated on a low range of the Berkshire hills, in the valley of the Housatonic river, 8 m. s. of Pittsfield, 33 m. s.e. of Albany, N.Y., 110 m. w. of Boston, and 125 m. from New York city. It has a station on the Housatonic railroad between Stockbridge and Pittsfield. It has 4 churches, an academy, excellent public schools, and a public library. It has manufactories of window and plate glass, lime, lumber, brick, flour, and iron-works. Its mineral products include iron ore and limestone, also marble of a superior quality, some of which has been used in the erection of government buildings in Washington.

LENOX, N. York. See page 898.

LENOX, James, 1800–80; b. New York; of good family, and in affluent circumstances, he received a liberal education, and thorough training for a moral and healthy life. His experiences were enlarged and his views broadened by extended foreign travel; and when he at last entered upon the long period of comparative retirement from public notice—which was his choice—it was with that propensity to "do good by stealth and blush to find it fame," which ever thereafter characterized him. Among those who best knew him, he justly gained a reputation for unostentatious charity, wisely administered, as to which the general public was but little informed. And the endowment of the Presbyterian hospital in Fifth avenue, New York, and that of the Lenox library, magnificent gifts as they were, were not isolated instances as such, but only formed the crowning incidents of the administration of a thoroughly and persistently beneficent career. Mr. Lenox was a devoted bibliophile through life, and his bibliographical knowledge was, in certain directions, quite unequaled in his own country, and probably unsurpassed elsewhere. He formed a private library, which for its money value, as well as the rarity of many of its articles, was unrivaled, and of which the learned Dr. Cogswell, superintendent of the Astor library, remarked, that while it would have filled the space of only one of the 34 alcoves of that institution, in cost it exceeded that entire collection, at the time when the statement was made, which was in 1860. This library was fullest in bibles, early voyages and travels, early-printed American books, and *incunabulæ*. In the department of accounts of early voyages to America it was utterly without a rival. It contained the most perfect and finest copy of De Bry's Voyages known; the rare *Bay Psalm Book;* Eliot's Indian Bible; and the world-renowned Mazarin Bible, printed by Guttenberg, Faust, and Schœffer, at Mayence, in 1455; the only perfect copy in America, and which cost Mr. Lenox, at auction, $2,600. This superb collection was made the nucleus of the Lenox library, and, with the gallery of paintings bequeathed by their owner and collector for the same purpose, now exists in that institution, a gift to the city of New York. See Libraries.

LENS (Lat. "a lentil") is a circular section of any transparent substance, having its surfaces either both spherical, or one of them plane and the other spherical. As represented in Fig. 1, a ray of light in passing through a lens is bent towards its thickest part; hence lenses are either convex (thickest in middle) or concave (thickest at edges). The former make the rays more convergent (q.v.) than before, the latter make them more divergent. The point to which the rays converge, or from which they diverge, is called a focus—principal focus when the rays are parallel. The focus for a convex lens is real, i.e., the rays actually pass through it, and form an inverted image smaller or larger than the object according as the object is at a distance greater or less than twice the principal focal length; but the image is erect and magnified if the object be within the principal focal length. For a concave lens the focus is virtual—the rays seem to come from it and form an erect image smaller than the object.

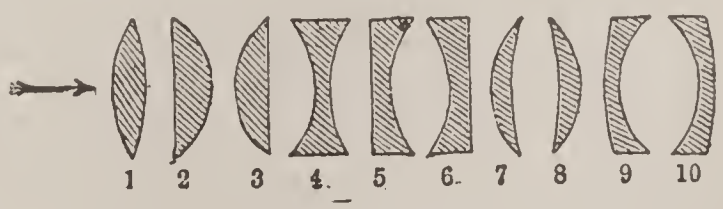


Fig. 1.—Lenses.

1, double-convex; if the surfaces are of equal curvature, equi-convex; 2, plano-convex; 3, convexo-plane; 4, double-concave, or concavo-concave; 5, plano-concave; 6, concavo-plane; 7, convex-meniscus; 8, concave-meniscus; 9, convexo-concave; 10, concavo-convex. The arrow shows the direction in which the light is supposed to fall.

The following is the mode of finding the principal focus when parallel rays fall on a double convex lens (Fig. 2): O is the center of the curved surface PAP′, and O′ of the surface PBP′; q is the point towards which the rays tend while passing through the lens, and F the point to which they converge after emergence. Let OA = r, O′B = s, Aq = f, and BF (the focal length) = f; then neglecting the thickness of the lens, which may be done when the curvature of the lens is small, Aq = Bq, and AF = BF. By the demonstration given under the article Dioptrics, we find $f' = \frac{\mu}{\mu - 1} r$, for the refraction at the first surface:

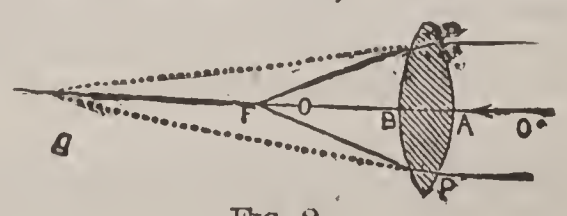


Fig. 2.

and, for the second surface, we find, in the ordinary treatises on optics, that when a pencil of converging rays emerges from a lens, $\frac{\mu}{f'} = \frac{\mu - 1}{s} - \frac{1}{f}$. Adding this formula to the former, we obtain $0 = (\mu - 1)\left(\frac{1}{r} + \frac{1}{s}\right) - \frac{1}{f}$, or $\frac{1}{f} = (\mu - 1)\left\{\frac{1}{r} + \frac{1}{s}\right\}$; and if the lens be equi-convex ($r = s$), and of glass ($\mu = \frac{3}{2}$), we have $\frac{1}{f} = \frac{1}{r}$, or $f = r$. This result is equally correct for a double concave lens; but if the thickness of the lens be taken into account, there is a small quantity which is added to the value of $\frac{1}{f}$ in the convex, but subtractive in the concave lens. The determination of the principal focus in the other forms of lenses will be found in the ordinary text-books. The lenses in Fig. 1, though they may be of the same focal length, have peculiar properties which render them suitable for particular optical instruments; thus, the convexo-plane lens has only one-fourth of the aberration of a plano-convex, or two-thirds of an equi-convex or equi-concave of the same focal length; but, in general, the equi-convex is the most desirable form. Aberration* has been to opticians what refraction is to the astronomer, an unwelcome intruder, which spoils his finest theories, and limits the accuracy of his results. This aberration has, indeed, been destroyed by combining lenses of equal and opposite aberrations, as, for instance, uniting, by means of Canada balsam, a double convex with a double concave. A still better method would be the formation of lenses having one side spherical, and the other of an ellipsoidal or a hyperboloidal form; but this has not yet been successfully accomplished. Convex lenses of glass, rock-salt, ice, etc., may be used as "burning-glasses," since radiant heat is refracted according to the same laws as light—the hot focus being nearly coincident with the luminous one. Platinum, gold, etc., have been fused in three or four seconds by this means.

LENS (anc. *Elena* or *Lenense*), a t. of France, in the dep. of Pas-de-Calais, on the Souchez, a feeder of the Scheldt, 17 m. s.s.w. from Lille. It is a place of great antiquity, and was once strongly fortified. It is famous for the great victory gained by the prince of Condé over the Germans and Spaniards, under its walls, in 1648. In the neighborhood of Lens are coal-mines, lime-works, and brick-works. Pop. '76, 9,383.

LENT (Ang.-Sax. *lencten* = Ger. *lenz*, spring; Gr. *Tessaracoste;* Lat. *Quadragesima*), the fasting-time before Easter, which is observed in the Roman, and in the Greek, and other oriental churches. Under the head of FAST have been considered the doctrinal and historical questions connected with the general practice of fasting. It remains only to explain briefly what is peculiar in the institution and the observance of the Lenten fast. It is certainly of very ancient, if it be not even of primitive, institution. The earliest allusions to it speak of it as an established usage handed down from the fathers. The forty days' period, as commemorative of our Lord's forty days' fast, or of the similar perfunctory fasts of Moses and of Elias, commences with Ash-Wednesday, between which day and Easter-Sunday (omitting the Sundays on which the fast is not observed), forty clear days intervene. The rigor of the ancient observance, which excluded all flesh, and even the so-called "white meats," is now much relaxed; but the principle of permitting but one meal, with a slight refection or collation, is everywhere retained. In Spain, during the crusades and the wars with the Moors, a practice arose of permitting, in certain cases, the substitution of a contribution to the holy war for the observance of the Lenten abstinence; and although the object has long since ceased, the composition is still permitted, under the same title of the *Cruzada*. In the Greek church, the ante-paschal fast is of 48 days; but it is only one of four similar fasting periods observed in that church. See FAST. In the Anglican church, Lent is retained as a church season of the calendar, with special services, and proper collects and prayers; but the observance of the fast is left to the discretion of each individual.

LENT (*ante*). In the Acts of the Apostles it is recorded that, on some special occasions, fasting in connection with prayer was practiced both by apostles and churches. Once in the epistles it is recognized as at times helpful to the offering of special prayer. Beyond this, in the midst of many earnest practical exhortations to a holy life, no mention is made of fasting, nor is there any intimation that reliance was placed on it either as meritorious in itself or as a help to holiness. In the age immediately following that of the apostles, the practice, so far as it prevailed, seems to have been a continuance of Jewish or pagan observance rather than a Christian requirement. Very little reference appears to have been made to it by writers of the first century. In the 2d c., as Victor and Irenæus say, it was the custom of several congregations to prepare themselves for Easter by mortification and fasting, commencing on the day in which they commemorated the crucifixion and continuing until the anniversary of the resurrection. This included a period of about 40 hours. By the time of the council of Nice (325 A.D.) it had been extended to 40 days, with the exception of the included Sundays, which were

* The directions which have been given for finding the foci of lenses, apply only to rays which pass through and near the center of the lens; the rays which pass near the edges converge to a different focus, and the distance between these two foci is called the longitudinal aberration.

never observed as fasts. Gregory the great, in 590, directed that the season should begin on the 6th Sunday before Easter, and that on all the intervening week days fasting should be practiced. Afterwards, either by him or Gregory II., four days of the preceding week, beginning with Ash-Wednesday, were added to make the whole fast 40 days. The council of Laodicea (held some time in the 4th c., but whether near the beginning, middle, or end is not now known) allowed only "dry food," that is, bread and water; and forbade the celebration of the festivals of martyrs, marriages, and birthdays during the whole of lent. Chrysostom, whose life extended from 347 to 407, says that "as many persons used to come to the communion thoughtlessly, especially at the time of the year when Christ first gave it to his disciples, our forefathers appointed 40 days for fasting, prayer, preaching, and holy assemblies; that all men being carefully purified by prayer, alms-deeds, fasting, watching, tears, and confession, might come with a pure conscience to the holy table." After a time fasting ceased to be a voluntary exercise. Laws enforcing it were passed in the 6th c. by the council of Orleans; in the 7th c. by the 8th council of Toledo; in the 8th c. the breach of its observance was punished with excommunication; in the 11th c. some persons who transgressed had their teeth drawn out. In later times such severities were greatly diminished. In England the observance was first made obligatory in the 7th c. by Ercombert, seventh king of Kent. Since the reformation lent has been retained in the calendar of the church of England, and has now a place in that of the Protestant Episcopal church in the United States, as a season for special religious services and instructions, in which the continuance and strictness of the fast is left to the judgment and choice of individual Christians. The six Sundays included in it are observed as festivals, never as fasts, and are therefore called Sundays *in* lent, not *of* lent. The last or passion week is naturally considered the most solemn portion of it, and is called "the great week." In nearly all Protestant churches on the continent of Europe—especially in the Lutheran—the lenten season is observed. The observance is regarded with more favor than formerly among non-episcopal denominations in the United States.

LENTAN'DO, in music, the same as *rallentando* or *ritardando*, meaning a gradual decrease in the speed of the movement.

LENTIBULARIA'CEÆ, a natural order of exogenous plants, allied to *primulaceæ*, but distinguished by an irregular corolla, and diandrous flowers. It has also intimate relations with *scrophulariaceæ*. It contains nearly 200 known species, all herbaceous, and all living in water or marshes. They abound chiefly in the tropics. A few species of bladderwort (q.v.) and butterwort (q.v.) are its only representatives in Britain.

LENTIL, *Ervum lens*, an annual plant of the same genus with tares (q.v.), a native of the countries near the Mediterranean, and which has been cultivated from the earliest times, yielding an esteemed kind of pulse. The English translation of the Bible is probably correct in calling the *red pottage* with which Jacob purchased Esau's birthright, *pottage of lentils;* the red color being very characteristic of this, which is still a very common article of food in the east. The lentil is extensively cultivated in the south of Europe, Egypt, and the east, and to some extent in other parts of the world. It has a weak and branching stem, from 6 to 18 in. high, and pinnate leaves with 6 to 8 pair of leaflets, the upper leaves only running into tendrils. The flowers are small, white, lilac, or pale blue, the corolla much concealed by the calyx, which is divided almost to its base into five narrow teeth. The pods are very short and blunt, thin, two-seeded, and smooth; the seeds have the form of a round lens, convex on both sides. There are numerous varieties, having white, brown, and black seeds, which also differ considerably in size, the greatest diameter of the largest being about equal to that of moderate-sized peas. Lentils are a very nutritive food, containing an uncommonly large amount of nitrogenous substances, and more easily digested than peas. They have recently become common in the shops of Britain in a form resembling *split peas*, and in that of meal (*L. farina*), which is the basis, if not the whole substance, of *revalenta arabica* and *ervalenta*, so much advertised as food for dyspeptic patients, at prices greatly exceeding those for which lentil metal can be obtained under its own name. Lentils mixed with peas in the making of pea-soup, greatly diminish its tendency to produce flatulence. Lentils are also excellent food for horses; and the herbage used as green food for cows, renders them extremely productive of milk. The lentil grows best in a light and rather dry soil. In a very rich soil, it produces comparatively few pods. Some of the varieties succeed well even on very poor soils. The whole life of the plant is shorter than that of any other of the *leguminosæ* cultivated in Britain. The seed may be sown in April in the climate of Britain; but although there is nothing in the coldness of the climate to prevent the successful cultivation of lentils, it seems to be too moist for them, the ripe or ripening seeds being very apt to be injured by moisture. There is no evident reason, however, why this plant should not be cultivated for green food of cattle.

LENTI'NI, a t. of Sicily, in the province of Siracusa, stands near the lake of the same name, on a hill 15 m. s.s.w. of Catania, and has 10,578 inhabitants. It has a large gunpowder mill, and derives a good revenue from the fishery in lake Lentini.

LEN'TO, or LENTAMEN'TÉ, in music, means slow, gentle. According to the best authorities, the movement implied by *lento* is quicker than *adagio,* or between it and *andante.*

LEN'TULUS, name of an ancient patrician family distinguished in Roman history, of which the most conspicuous was Publius Cornelius Lentulus Sura. He was quæstor and prætor, and in 71 B.C. become consul, but was expelled from the senate on account of his immoral life. He joined the conspiracy of Catiline, and became the leader of the conspirators after Catiline had left for Etruria in 63. Arrested by order of Cicero, then in the consulship, he was tried before a full senate, condemned to death, and strangled in the Capitoline prison, B.C. 63.

LENTULUS, EPISTLE OF, the title of a letter professing to describe the personal appearance of Christ as witnessed by the writer, who styles himself Publius Lentulus, president of the inhabitants of Jerusalem. Manuscript copies of it, differing considerably in their texts, are found in several libraries of England, France, Italy, and Germany. In substance it is as follows: "There has appeared in our time a man of great virtue named Christ Jesus, who is said by the people to be a prophet of truth, whom his disciples call the Son of God; he raises the dead and heals the sick He is a man of lofty stature, graceful mien, and venerable countenance, inspiring in those who look on him both love and fear. His hair falls around him, blown by the wind, and is somewhat curly, cærulean, and shining; it is parted in the middle, after the manner of the Nazarenes, his forehead is smooth and very calm, his face without wrinkle or blemish, and adorned with a moderate degree of color. His nose and mouth are entirely without fault; his beard, in color like his hair, is abundant and youthful, not long but forked; his eyes are bright and changeable in expression. In reproof he is terrible, in admonition, gentle; he is kind, blends cheerfulness with gravity, is never seen to laugh, but often to weep. Thus, tall in stature, having graceful hands and limbs, and grave in speech, he is in an uncommon degree self-controlled and worthy of admiration among the sons of men." In former centuries this letter was highly valued, and among Roman Catholics many still receive it as genuine. The general opinion of Protestant critics may be given in the words of Dr. Edward Robinson, who thus sums up his investigation of the subject: "In favor of its authenticity we have only the purport of the inscription. There is no external evidence whatever. Against its authenticity we have the great discrepancies and contradictions of the inscription; the fact that no such official person as Lentulus existed at the time and place specified, nor for many years before and after; the utter silence of history in respect to the existence of such a letter; the foreign and later idioms of its style; the contradiction between the contents of the epistle and established historical facts; and the probability of its having been produced at some time not earlier than the 11th century."

LENZ, JAKOB MICHAEL REINHOLD, 1750–92; b. Sessweyen, Livonia; studied at Königsberg; went to Strasburg in 1771 as tutor to some Russian nobles, where he met and became enamored with Goethe's Friedericke Brion of Sesenheim, who rejected his offer of marriage. In 1776 he associated with Goethe, Herder, and other literary men at Weimar, but subsequently became dissipated, then insane, and ended his days in misery.

LEO, the fifth sign of the zodiac (q.v.).

LE'O, the name of 13 among the popes of the Roman Catholic church, of whom the following call for particular notice.—LEO I., surnamed "the great," who is held a saint of the Roman Catholic church, and is one of the most eminent of the Latin fathers, was born of a distinguished Etrurian family at Rome, about the end of the 4th century. Of his early life, little is known. On the death of Sixtus III. in 440, Leo was chosen as his successor. It is in his pontificate that the regular series of papal letters and decretals may be said to commence. Leo's letters, addressed to all parts of the church, exhibit prodigious activity and zeal, and are used by Roman controversialists as an evidence of the extent of the jurisdiction of the Roman see. In a council held at Rome in 449, he set aside the proceedings of the council of Ephesus, which had pronounced in favor of Eutyches (q.v.), summoned a new council at Chalcedon, in which his legates presided, and in which Leo's celebrated "dogmatical letter" was accepted "as the voice of Peter," and adopted as the authentic exposition of the orthodox doctrine on the person of Christ. The history of Leo's interposition with Attila in defense of the Roman city and people will be found under the head ATTILA; and his subsequent similar interposition with Genseric, if less dramatic in the incidents with which history or legend has invested it, was at least so far successful as to save the lives of the citizens, and the public and private buildings of the city of Rome. Leo died at Rome in 461. His works, the most important of which are his letters and sermons, were first printed in 1479, and afterwards by Quesnel (2 vols., Paris, 1675); but a much more complete and trustworthy edition is that of Cacciari (3 vols. fol., Rome, 1753–55), and of the brothers Ballerini (Venice, 1757).—The pontificate of LEO III. is chiefly noticeable as the epoch of the formal establishment of the empire of the west. He was a native of Rome, and was elected pope on the death of Adrian I. in 795. During the greater part of the 8th c. the popes, through the practical withdrawal of the eastern emperors, had exercised a

temporal supremacy in Rome, which was fully recognized by the gift of Pepin, and placed under the protectorate of the Frank sovereigns, who received the title of patrician. The pontificate of Leo, however, was a troubled one, and in 799 he was treated with much violence, and obliged to flee to Spoleto, whence he afterwards repaired to Paderborn, in order to hold a conference with Charlemagne. On his return to Rome he was received with much honor by the Romans, and the chiefs of the conspiracy against him were sentenced to banishment. In the following year (800), Charlemagne, having come to Rome, was solemnly crowned and saluted emperor by the pope, and the temporal sovereignty of the pope over the Roman city and state, under, however, the suzerainty of the emperor, was formally established. In 804 Leo visited Charlemagne at his court at Aix-la-Chapelle. With Charlemagne's successor, Louis le Débonnaire, Leo was embroiled in a dispute about the right of sovereign jurisdiction in Rome, which had not been brought to a conclusion when Leo died in 816.—Leo X., Giovanni de' Medici, the second son of the celebrated Lorenzo de' Medici, was born at Florence in Dec., 1475. From his cradle he was destined to the ecclesiastical career. His education was intrusted to the ablest scholars of the age; and through the influence of his father with the pope, Innocent VIII., he was created cardinal at the unprecedented age of 13 years, in 1488. In the expulsion of the Medici from Florence, after the death of Lorenzo, the young cardinal was included, and he used the occasion as an opportunity of foreign travel. He was employed as legate by Julius II.; and during the war with the French he was taken prisoner in the battle of Ravenna, but soon afterwards effected his escape. On the death of Julius II. in 1513, cardinal de' Medici was chosen pope at the early age of 37, under the name of Leo X. His first appointment of the two great scholars Bembo and Sadoleto as his secretaries was a pledge of the favor towards learning which was the characteristic of his pontificate; but he did not neglect the more material interests of the church and the Roman see. He brought to a successful conclusion the fifth council of the Lateran (see Council), and the schism which was threatened by the rival council of Pisa. He concluded a concordat with Francis I. of France, which continued to regulate the French church till the revolution. In the political relations of the Roman see he consolidated, and, in some degree, extended the re-conquests of his warlike predecessor, Julius II., although he also used his position and his influence for the aggrandizement of his family. His desertion of the alliance of Francis I. for that of his young rival, Charles V., although the subject of much criticism, was dictated by a sound consideration of the interests of Italy. But it is most of all as a patron of learning and art that the reputation of Leo has lived with posterity. Himself a scholar, he loved learning for its own sake; and his court was the meeting-point of all the scholars of Italy and the world. He founded a Greek college in Rome, and established a Greek press, which he endowed munificently (see Lascaris). In the encouragement of art he was no less munificent. Painting, sculpture, architecture, were equally favored; and it is to his vast project for the rebuilding of St. Peter's, and to the step to which he had recourse for procuring the necessary funds—his permitting the preaching of an indulgence, one of the conditions of obtaining which was the contribution to this work—that the first rise of the reformation in Germany is ascribed. He himself seems to have regarded the movement as of little importance, describing it as "a squabble among the friars;" and though he condemned the propositions of Luther, and issued a commission to inquire into his doctrines, his measures, on the whole, were not marked by much severity. His personal habits were in keeping with his taste, splendid and munificent in the highest degree; but in his moral conduct he maintained a strict propriety, and his character, although not free from the stain of nepotism, the vice of that age, and more modeled on the ideal of an enlightened prince than on that of a zealous and ascetic churchman, was beyond all imputation of unworthiness or irregularity. His death, which occurred rather suddenly on Dec. 1, 1521, during the public rejoicings in Rome for the taking of Milan, was by some ascribed to poison, but there seems no solid reason for the suspicion. See Roscoe's *Life and Pontificate of Leo X.* (1805).

LEO I., Flavius, emperor of the east, surnamed the great; d. 474; b. Thrace; having, by the influence of Aspar, who commanded the auxiliaries, ascended the throne at the close of the peaceful reign of Marcianus, A.D. 457, he was confirmed by the senate, and acknowledged emperor and chief of the military forces, receiving the crown from the hands of the bishop Anatolius, patriarch of Constantinople, who gave the proceedings the sacred sanction of a ceremony, which introduced at that time, has ever since been performed on the occasion of the elevation of a monarch to the throne. His birth was lowly, but urged by a lofty ambition, with persistent endeavor, aided by the interested exertion of the power of the Gothic chief, Aspar, he rose to high military rank, and at the time of the death of his predecessor was in command of a body of troops near Selymbria. Upon assuming the control of affairs he adopted the policy of Marcianus toward the Eutychians, who having recently put to death their bishop and placed another, Ælurus, in his place, were disturbing the peace of Alexandria, and inciting the populace against him. He exiled Ælurus, and appointing an orthodox bishop in his place, angered Aspar, who being an Arian, had approved and concealed the movements of the Eutychians. On this issue he quarreled with Aspar. Having defeated the Huns in a battle in the province of Dacia, in which a son of Attila was killed, with Anthemius,

emperor of the west, as an ally, he prepared a large fleet with which to convey a division of the army to make war against the Vandals, under Genseric, then in possession of Africa. He succeeded in taking the island of Sardinia and Tripolis, and other towns of Libya, but on attempting to leave the harbor of Carthage by night, he was attacked by fire ships, which setting fire to his fleet, caused the expedition to result in failure. He suspected Aspar and his father of intrigue with his commander Basiliscus that brought about these reverses. Their motives have been questioned by historians, ascribing to them a desire to rule the kingdom through him, Aspar's Arianism being an insuperable barrier to his assuming personal direction of the empire. Notwithstanding that he owed his advancement and his accession of the throne to them, he resolved to put Aspar to death, and having in A.D. 471 arranged the preliminaries of a marriage between his daughter and Patricola, Aspar's son, purposely exciting the indignation of the people whom he knew to be inimical to the family of Aspar, they rose in revolt against the union, and pursued Aspar and his son to the church of St. Euphemia where they had taken refuge. He persuaded them to come to the royal palace for protection, and violating his royal oath beheaded them on their arrival. His capital was menaced for two years by the Goths, who, incited by Ricimer, constituted themselves the avengers of Aspar in the interest of the Arians; at the end of which time peace was declared. He died in 474, leaving a reputation for thoughtful vigilance and moderation in the conduct of his empire, for a desire to promote the well-being of his subjects, for wisdom in legislation, and economy in administration, bearing the odium of no failing but that of a culpable neglect of justice in allowing Aspar absolute freedom for so long, and of betraying him with perjury at last.

LEO (*ante*), II., SAINT, b. in Sicily, and became pope in 682, but died in the following year. He succeeded in healing the schism between the secs of Rome and Ravenna, through an arrangement by which the bishops of Ravenna were to be ordained at Rome, and to be exempted from the payment of the money fee previously exacted from them. He was the friend and patron of church music, and aided in the improvement of the Gregorian chant. He built a church to St. Paul, and is said to have been the originator of the custom of sprinkling with holy water.

IV., d. 855, a native of Rome, succeeded Sergius II. in 847. He built a new Roman suburb, occupying 4 years in the labor, and it was named in his honor *Civitas Leonina*. He also restored Porta, a town near the mouth of the Tiber, where he colonized several thousand Corsicans who had been driven from their own country by an inroad of Saracens. He also founded a new town which was called Leopolis, since destroyed. The fabulous pope Joan has been interpolated by certain writers between this pope and Benedict III., who succeeded him.

V. assumed the papal authority Oct. 28, 903, but was imprisoned and forced to abdicate by Christopher, cardinal-priest of St. Lorenzo, and his own chaplain. He is said to have died of grief in prison a little more than a month after his election.

VI., born in Rome, succeeded John X., 928, and died after occupying the papal chair during 7 months. It has been alleged that he was put to death by the celebrated and infamous Marozia.

VII., also a Roman, became pope in 936, and reigned until his death in 939. His character is said to have been excellent, but little or nothing is recorded concerning his life.

VIII., succeeded John XII., who had been deposed, but who afterwards put Leo to flight and resumed the papacy. John was put to death, for cause; Benedict V. was elected by the Romans to fill the vacancy; and he, in turn, was removed by the emperor, Otho I., who reinstated Leo. The latter died about 965, and was succeeded by John XIII.

IX., BRUNO, was b. in Alsace in 1002, d. 1054. He was bishop of Toul, and was elected to the papacy in 1049. He was a man of great erudition, and did much to reform the discipline and morals of the clergy. Having led a grand military movement against the Normans, he was taken prisoner and detained by them in confinement for more than a year, the greatest respect being observed in his treatment. A number of important councils were held during his reign.

XI., ALLESSANDRO DE MEDICI, 1535–1605, b. Florence; was bishop of Pistoia in 1573, archbishop of Florence in 1574, and cardinal in 1583, in which capacity he was delegated to receive Henry IV. into the bosom of the Roman Catholic church. He was elected pope in 1605, and lived only 26 days thereafter.

XII., ANNIBALE DELLA GENGA, 1760–1829; b. Spoleto; archbishop of Tyre in 1793, and cardinal in 1816; was elected pope in 1823, on the death of Pius VII. He vigorously antagonized the Carbonari and other secret societies, and opposed Bible societies in a circular letter. He reorganized the university of the Sapienza in Rome, and reformed the administration of the papal state. He was succeeded by Pius VIII.

LEO III., FLAVIUS, surnamed "the Isaurian" (from his birthplace), emperor of Constantinople (718–741 A.D.), was, like most of the eastern emperors, first a soldier in the imperial army, and soon rose to eminence through his military talents. Anastasius II. appointed him to guard the Asiatic portion of the empire from the ravages of the Arabs, but on the deposition of the former by Theodosius III., Leo overthrew the usurper, and

assumed the crown (Mar., 718). He was scarcely seated on the imperial throne, when the caliph Suleiman laid siege to Constantinople by land and sea; this, the third siege of the capital by the Arabs, lasted for two years, but was finally raised through the energy of Leo. The governors of several provinces had meantime rebelled, and it cost Leo several years of petty warfare before peace was restored to the empire. Leo now issued an edict condemning the worship of images in the Catholic churches throughout the empire. The edict produced a most startling effect; rebellions broke out in all quarters, and Ravenna, Rome, and the other Greek possessions in Italy were finally severed from the empire. Leo, enraged at his losses, determined to take revenge on their author, the pope, and accordingly removed Greece, Illyria, and Macedonia from his spiritual jurisdiction, subjecting them to the patriarch of Constantinople, thus creating a permanent breach between the Latin and Greek churches (734). During the remainder of his reign little of importance occurred, excepting an indecisive war with the Arabs, and a great earthquake (Oct., 740), which caused dreadful calamities throughout the empire. Leo died June 18, 741.

LEO V., Flavius, emperor of the east, surnamed the Armenian; d. 820; b. Armenia; rose to the rank of gen., but under the accusation of treason made by the emperor Nicephorus, he was imprisoned in a convent, until Michael Rhangabe coming into power in 811, released him and restored him to his command. In 813, having executed a successful campaign against the Saracens, he set out on an expedition against the Bulgarians, Michael being in chief command, but in the engagement allowed his own army to suffer defeat at Adrianople. Perceiving a way to reach the throne himself by profiting by the falling fortunes of his superior, he instigated a rebellion, in the remnant of the army, against his former benefactor, and marching at their head was elected emperor in his place. Receiving the imperial scepter sent by the unresisting hand of the deposed monarch, who retired into a convent, he was crowned at St. Sophia by the patriarch Nicephorus. He was an iconoclastic prince of the most pronounced type, and caused, so far as he was able, the adoration of images to be abolished by the second synod of Constantinople in 815, and condemned to punishment those who persisted in it, with Theodorus Studita at their head; exiling the patriarch Nicephorus for the same cause. The weight of public sentiment was against him; his frequent changes in religious belief gaining for him the nickname of chameleon. In 814 he defeated the Bulgarians at Messembria. He arrested Michael, surnamed the stammerer, whom he suspected of treason, notwithstanding his former valuable services, and condemned him to death; but on Christmas morning in 820, while he knelt in the chapel of his palace, he was murdered by the adherents of Michael disguised as priests. Nicephorus, then in exile, exclaimed, "The church is freed from an enemy, but the state has lost an able prince." His reign is chiefly remarkable for the strict military discipline which was by him infused into the administration of the civil government.

LEO VI., Flavius, Emperor of the Byzantine empire, b. 865; son of Basil I., whom he succeeded. His reign was marked by a succession of blunders and stupidities. His *Oracula* is a poem in iambic verse, in which he prophesied the fate of the empire. Several editions of it are extant. His *Orationes*, thirty-three in number, are mostly upon theological subjects. Of these there is no collected edition, but some of them have been preserved in Baronius's *Annales*, and others in *Bibliotheca Patrum*, etc. His most important work, however, is a treatise on military affairs, made up chiefly of extracts from other authors. Many editions of this are in existence, and among them an English translation by John Cheke (1554), and one in French by Joly de Mezeray (1774).

LEO XIII., the present head of the Roman Catholic church, was elected to the pontifical chair, Feb. 20, 1878. Descended from an old patrician family, Gioacchino Pecci was b. Mar. 2, 1810, at Carpineto, a village in central Italy. He studied at the Collegio Romano, graduated in law and theology, and becoming a favorite with pope Gregory XVI., was named by him a prelate of the household. As delegate successively at Benevento, Spoleto, and Perugia, he displayed great energy in the government of these provinces, and was especially vigorous and successful in the work of suppressing brigandage. Though but 33 years of age, he was in 1843 made archbishop of Dalmatia, and sent to Brussels as papal nuncio. In 1846 Gregory selected Pecci for the dignity of cardinal, but his friendly views in favor of the young archbishop were frustrated by death, and it was not till 1853 that Gregory's successor, Pius IX., saw fit to confer the cardinal's hat. Cardinal Pecci was no favorite of the all-powerful cardinal Antonelli, and was accordingly not prominent in papal councils. But in 1877 he was made Camerlengo (papal finance minister), and was chosen to be the successor of Pius IX. in the pontificate in 1878.

LEO XIII. (*ante*). The conclave of cardinals convened Feb. 18, 1878; and on the 20th, cardinal Pecci, archbishop of Perugia, received 45 votes, and was declared pope, assuming the above name. He at once made known the fact of his election to the great powers, and the first act of his pontificate was to restore the Roman Catholic hierarchy to Scotland, which was done on Mar. 4, 1878, by letter apostolic. The episcopal sees of St. Andrews and Glasgow were restored, and those of Aberdeen, Argyll, Dunkeld, the Isles, and Whithorn or Galloway, were created. Pope Leo appointed cardinal Franchi secretary of state and master of the sacred palaces; cardinal Simeoni secretary of the

Propaganda; cardinal Sacconi prodatary; and cardinal Morochini chamberlain. He issued his first encyclical letter in April, in which he specifically set forth a long catalogue of the evils afflicting human society—crimes, errors, and misdemeanors; attributing all of these to the departure of those concerned in them from the Roman Catholic church. Describing the present age as being "in bitter antagonism to religion and the church of Christ," he proceeded to attribute to the papal authority all that had ever been of good, precedent to this miserable condition, asserting that it was the glory of the popes "that they ever stood as a wall and a bulwark to prevent human soeiety from sinking back again into its former barbarism and superstition." The encyclical continued by claiming temporal authority as the prerogative of the papacy, and urging the faithful to persevere and persist in asserting and sustaining the claim. He demanded that education should be made "conformable in science and discipline to the Catholic faith;" attacked the custom of civil marriages; recommended the encouragement of "those associations which have principally been established of late years to the great advantage of Catholic interests;" and closed with a testimonial to the united condition of the church as against its enemies. The new pope continued to hold the antagonistic attitude sustained by his predecessor against king Humbert of Italy, and declared the governmental prohibition of religious instruction in the Italian schools to be a "very reprehensible measure." On the death of cardinal Franchi, he appointed cardinal Nina to the position which had been held by the former. On July 20, 1878, under the direction of the pope, the congregation of the propaganda issued "Instructions," directing the introduction of the canon law into the Roman Catholic church in the United States that country having hitherto been regarded as a missionary field. In 1879 the pope issued an encyclical letter aimed at the doctrines of the Socialists, Communists, and Nihilists; which was, by order of the czar, read in all the Roman Catholic churches in Russia. By his reception on Feb. 22 of a large number of Catholic journalists, the pope recognized the power of the press. During this year, the twenty-fifth anniversary of the definition of the Immaculate Conception was celebrated with pomp, the pope issuing an encyclical on the occasion. In all things the pope has thus far patterned his conduct and his opinions after those of Pius IX., and had sustained at their highest altitude the claims of the church concerning its authority and prerogative. Since this time, however, as is claimed by acute observers, there are signs of a far more comprehensive grasp and larger liberality than were intellectually possible to his sincere and estimable predecessor. The present pontifical administration seems aiming successfully at the unification of the opposing principles and tendencies which undeniably exist in the great church; and while upholding in full vigor the official demands of the Roman see, to seek application of the ancient principles in a spirit not unfriendly to the governing forces of modern Christendom. It is probable that the time has not yet come for a just estimate of this pontificate; while there has appeared sufficient reason for ascribing to the pope high intellectual and administrative ability, and personal moral excellence.

LEO, Heinrich, b. at Rudolstadt, Germany, 1799. He resolved at first upon the study of medicine, but, under the influence of Turnvater Jahn, turned his attention to history, and took an active part with the students at Jena and Göttingen in the agitations of the period. Breaking away from these surroundings, he went to Italy under the patronage of the princess of Rudolstadt, and on his return avowed himself an enthusiastic admirer of Hegel. In 1828 he became professor in history at the university in Halle, and during the next few years wrote several works, in which he followed more or less closely the philosophy of his great master. Subsequently, however, he changed his position, adopting Hengstenberg as his leader, and attacking energetically the ideas of Hegel. Under the influence of this reactionary tendency he wrote several works. D.'78.

LEO, Leonardo, 1694–1756; b. Naples; studied music in Romè under the celebrated composer, G. O. Pitoni. Returning to Naples, he was made chapel-master of the church of Santa Maria Solitaria, and afterwards master of the conservatory La Pietà and the conservatory of Sant' Onofrio. Besides his labors as a teacher, he composed voluminously for the church and for the stage, his music being highly commended by so excellent an authority as Dr. Burney. A difference of opinion exists among the authorities as to the date of his death, the date here given having been found inscribed on a portrait of the composer, preserved in the royal college of music in Naples, while other sources give it as 1742, 1745, and 1755.

LEO of Thessalonica, surnamed the philosopher. He was a learned ecclesiastic of the 9th c., but the date and place of his birth are unknown; studied grammar and poetry at Constantinople, and arithmetic, rhetoric, and philosophy under Michael Psellus in the island of Andros, and at the monasteries in continental Greece. He was a teacher at Constantinople, was appointed by the emperor Theophilus public teacher or professor, and soon afterwards the patriarch Joannes, a kinsman of Leo, by order of the emperor, consecrated him bishop of Thessalonica. On the death of the emperor he was deposed from his see, but was subsequently placed at the head of a mathematical school established by Cæsar Bardas at the palace of Maynaura in Constantinople. Leo was still living in 869. Some astrological MSS. ascribed to him are found in European libraries.

LEO AFRICA'NUS, or AL HASSAN IBN MOHAMMED, about 1485–1562; b. in Grenada, Spain. He was of Moorish descent, and his parents emigrated to Morocco after the capture of Grenada by the Spaniards. At 16 years of age he went with an uncle on an embassy to Timbuctoo, and afterwards traveled in northern and central Africa, penetrating to Nubia, descending the Nile, and extending his explorations into Persia. While returning from Constantinople by sea in 1517 he was captured by pirates and taken to Rome, where he was converted to Christianity and patronized by pope Leo X., whose name he adopted. He learned the Latin and Italian languages and taught Arabic. Died at Tunis. His *Description of Africa*, written in Arabic, was published in Italian by Ramusio in 1550, and, more than 80 years later, in Latin by Elzevir.

LEO'BEN, a t. of Austria in Styria, 9 m. s.w. of Brück, on the Mur, 1650 ft. above the sea-level, and at the junction of the Vienna and Trieste railway; pop. 4,529. It is well built, surrounded by a wall with three gates, has extensive barracks and several elegant public buildings. The inhabitants are employed mostly in mining and forging iron; and some trade is carried on in coal, iron, and salt. Here was concluded, April 18, 1797, a preliminary treaty between Austria and the French republic, followed by the peace of Campo Formio.

LEOCH'ARES, an Athenian sculptor mentioned by Pliny as living B.C. 372. In B.C. 352, he was one of those employed to erect the famous tomb in honor of Mausolus, king of Caria. He also was engaged with other artists by Philip in commemorating his victory at Chæronea B.C. 338, and produced his portrait-statues of Philip, Alexander, Amyntas, Olympias, and Eurydice. His masterpiece was the "Rape of Ganymede by the Bird of Jove," a bronze statue much admired in its time, of which a marble copy is now in the *Museo-Pio-Clementino* at Rome. His statue of "Jupiter Tonans" is characterized by Pliny as "*ante cuncta laudabilem.*"

LEOBSCHÜTZ, a t. in the s. of Prussia, in Silesia, near the river Zinna, has large corn and flax markets. Pop. '80, 12,018.

LEOMI'NSTER, a t. in central Massachusetts, much visited in the summer season on account of its delightful surroundings, and its convenient distance from Wachusett mountain; pop. '80, 5,776. It is situated on the e. and w. banks of the Nashua river, and each village has a railway station, Leominster Center on the Boston, Clinton, Fitchburg and New Bedford railroad, and North Leominster on the Fitchburg railroad. It is 54 m. n.w. of Boston and 5 m. s.e. of Fitchburg. It is well built, and has excellent public schools, a national bank, a savings bank, 6 churches, 1 newspaper, gas-works, water-works, a public library, and 2 hotels. Its leading industries are the manufacture of combs, pianos, paper, children's carriages, furniture, toys, linen and woolen goods.

LEOMINSTER, a market t. and municipal and parliamentary borough of England, in the co. of Hereford, situated 12 m. n. of the city of that name, on the river Lug. It returns one member to parliament. The immediate vicinity of Leominster is one of the most celebrated cattle-breeding districts in the world. Pop. '81, 6,042.

LEON, formerly a kingdom, and subsequently a province of Spain, now subdivided into the smaller provinces of Salamanca, Zamora, and Leon, is situated in the n.w. of Spain, s. of Asturias, and bordering on Portugal. Area about 15,000 sq. miles. Pop. '70, 881,930 (of modern province, 350,092). The country, which is intersected by the Douro, is mountainous, generally fertile, but miserably cultivated. It affords pasturage to vast flocks of merino sheep. The inhabitants are for the most part uneducated and lazy, but are very high-spirited, rich in peculiar customs, of pure Spanish descent, sincere, hospitable, and brave. It is said that in the high districts s. of Salamanca, remnants of the pure Gothic tribes exist, and at Astorga, remnants of the old Celtiberi—the *Maragatos*. The means of communication are everywhere very defective. The kingdom of Leon was erected, in 746, by Alfonso the Catholic out of the provinces he had wrested from the Saracens and the older kingdom of Asturias, and in 1230 it was permanently united to Castile.

LEON, a co. in n. Florida, having for its n. boundary the state line of Georgia, and for its w. the Ocklockonnee river, emptying into Appalachee bay and thence into the gulf of Mexico; also, has lakes of considerable size in the northern section; 800 sq.m.; pop. '80, 19,660—19,573 of American birth, 16,843 colored. Its surface is uneven, rising into hills in the n. section, and in the s. spreading out into broad plains. It is well timbered, and the soil is adapted to the raising of tobacco, cotton, rice, wool, oats, corn, sweet potatoes, sugar cane, and live stock. Cash value of farms in '70, $1,225,418. It had in '80, 18 manufacturing establishments, employing 87 hands, with a capital of $33,400, and product of $95,195. It is intersected by branches of the Jacksonville, Pensacola and Mobile railroad, forming a junction at Tallahassee. Seat of justice, Tallahassee, the capital of the state.

LEON, a co. in e. Texas, having the Trinity river for its e. boundary, emptying into Galveston bay, is drained by that river and the head-waters of the Navasota river, which forms its w. boundary; 800 sq.m.; pop. '80, 12,818—12,729 of American birth, 5,110 colored. Its surface is hilly and heavily timbered. Its soil, a rich black loam, is very fertile along the water-courses and adapted to the raising of live stock, tobacco, cotton, sweet potatoes, and sorghum. In '70, it produced 12,291 lbs. of honey. It is

traversed by the International and Great Northern railroad, crossing it diagonally. Seat of justice, Centreville.

LEON (the *Legio septima gemina* of the Romans), capital of the former Spanish province of the same name, is situated between the rivers Bernesga and Torio, in a beautifully wooded plain, 85 m. n.w. of Valladolid. Part of the old Roman wall, 20 ft. thick, is still standing. The streets are crooked and dirty, but the churches are both numerous and splendid, especially the cathedral, a specimen of the purest Gothic, containing the tombs of many sovereigns of Leon, saints, and martyrs. The trade of Leon is now unimportant. Pop. 5,720.

LE'ON, a city of Mexico in the state of Guanajuato, capital of a district of the same name, on the Rio Torbio, 100 m. n.w. of Mexico; pop. 78,930. It is well built, and is about 6,000 ft. above the sea. In a large and beautiful square are several fine public buildings, among which are the governor's palace, the parish church, and a picturesque arcade. The city has several churches, three convents, a hospital, and schools. It is one of the most flourishing cities of Mexico, has an extensive commerce in wheat and other grains, and manufactures leather, saddlery, cottons, and woolens. It was founded in 1576, but became commercially important only about 1855. It is now the chief entrepot of the Bagio or the plain of Guanajuato, celebrated for its thriving agriculture.

LE'ON, a city of Nicaragua, near the n.w. extremity of the lake of its own name, distant about 10 m. from the Pacific ocean, is finely situated in a most picturesque district, and contains a cathedral, a noble edifice, and a university. Pop. about 25,000.—The lake, also called Managua, measures 35 m. by 15. It derives considerable importance from its being an essential part of perhaps the most promising route across Central America between the Atlantic and the Pacific. See NICARAGUA LAKE.

LEON, PONCE DE. See PONCE DE LEON, *ante.*

LEONARD, DANIEL, 1740–1829; b. at Norton, Mass.; graduated at Harvard in 1760; studied law, and attained to eminence in the profession; was often elected to the legislature. In the discussions preceding the revolution he was a stanch whig, but when the war broke out he espoused the royal cause, sacrificing in consequence a considerable estate. His defense of the English government, written in reply to the arguments of John Adams against the colonial measures of lord North, displayed great ability. Mr. Adams reprinted the controversy in 1819, with a preface by himself. Leonard retired from Boston with the British forces in 1776, resided some time in London, and was afterwards for many years chief-justice of Bermuda. Died in London.

LEONARD, JAMES, about 1618–91; b. England; settled in Taunton, Mass., in 1652, and established there the first iron-works in the American colonies. Died in Taunton.

LEONARDO DA PISA, LEONARDO BONAC'CI, or BONACCIO; b. Italy; lived at the beginning of the 13th century. He was placed by his father with a master, who taught him the Arabic system of arithmetic, and to this science he devoted most of his life. He traveled in Syria, Egypt, and Greece to learn the different systems of arithmetic, decided that the Arabic was superior to all others, and did much to extend the knowledge of it in Europe. He is said to have introduced algebra into Europe. He wrote a work on algebra which was never printed, but is preserved at Rome, and is described in Cossali's *History of Algebra.* He was the author of a treatise entitled *Practica Geographia,* now in the Magliabecchi library at Florence, but his principal work was *Liber Abaci,* using the word abacus, which is an instrument employed to facilitate computation, to denote arithmetic in general. This was written in 1202, and published at Rome in 1857 by B. Boncompagni. He gained great celebrity.

LEONARDO DA VINCI. This great genius, whose works in painting are classed with those of Raphael and Michael Angelo, was also a sculptor, architect, and engineer, and he cultivated successfully anatomy, botany, mathematics, astronomy, poetry, and music. He was born, in 1452, at Vinci, in the Val d'Arno, near Florence; his father, Pietro da Vinci, notary to the signiory of Florence, placed him in good time with Andrea Verrocchio, who was an able sculptor, and a good painter; but in painting, his pupil soon surpassed him. In 1483 he went to Milan, and the duke Lodovico il Moro conferred on him an annual pension of 500 dollars. Besides performing various services for the duke, particularly as an engineer, he instituted an academy of arts in 1485. This academy, of which he was named director, was attended by many eminent artists, and influenced most beneficially the Lombard school of painting. It was in 1497, when 45 years of age, that he executed his famous picture, "The Last Supper," which was painted in oil on the wall in the refectory of the Dominican convent of Santa-Maria-delle-Gracie. He remained in Milan till 1500, when, on its occupation by the French, he returned to Florence, and in 1502 was appointed architect and chief engineer to Cesare Borgia, capt.gen. of the pope's army. In 1503 he was employed by Soderini Gonfaloniere of Florence to paint one end of the council-hall of the Palazzo Vecchio. For this Leonardo only completed the celebrated cartoon called the "Battle of the Standard;" another cartoon for a painting in the same apartment, the equally celebrated design called the "Cartoon of Pisa," having been executed at the same time by Michael Angelo. He returned to Milan in 1506. In 1513 he visited Rome in the train of Giuliano de' Medici, who went there to assist at the coronation of his brother, Leo X.; and in 1515 accompanied Francis I.

to Bologna, where he signed the concordat with Leo X. On the pressing invitation of Francis, he accompanied that monarch to France in 1516, along with his pupils Salai and Melzi. In bad health during the whole period he was in France, he executed no paintings there, being chiefly occupied in engineering. His death occurred at Amboise, May 2, 1519. The genius of Leonardo was universal: painting was not his sole occupation. He imparted to his works certain qualities of the highest kind, for his drawing evinces very great delicacy and elevation of style, not modeled on the antique, but formed on a profound knowledge of nature; and in his treatment of light and shadow he infused a degree of power, combined with softness, into his productions that invests them with a peculiar charm; while the influence of his style has operated powerfully on the schools of Milan and Parma. Leonardo's treatise on painting, *Trattato della Pittura*, has been published in several languages. The principal edition is that published at Paris, in folio, by Du Fresne, illustrated with drawings by Nicolas Poussin; the best, as regards the text, was published at Rome in 1817. Mr. Hallam says, in his *Introduction to the Literature of Europe:* "Leonardo's greatest literary distinction is derived from those short fragments of his unpublished writings that appeared not many years since, and which, according, at least, to our common estimate of the age in which he lived, are more like revelations of physical truths vouchsafed to a single mind, than the superstructure of its reasoning upon any established basis. The discoveries which made Galileo and Kepler and Maestlin and Maurolicus and Castelli, and other names illustrious, the system of Copernicus, the very theories of recent geologists, are anticipated by Da Vinci, within the compass of a few pages, not, perhaps, in the most precise language or on the most conclusive reasoning, but so as to strike us with something like the awe of preternatural knowledge." These things were published by Venturi (Paris, 1797), entitled: *Essai sur les Ouvrages Physico-Mathématiques de Léonard da Vinci, avec des Fragmens tirés des Manuscrits apportés de l'Italie.* The MSS. were afterwards returned to Milan. See *Leonardo da Vinci and his Works*, with Life, by Mrs. C. Heaton (London, 1874).

LEONFOR'TE, a Sicilian t. in the province of Messina, situated in a mountainous neighborhood, on the shore of the Mediterranean. It is surrounded by walls, and has a pop. of 11,522 inhabitants. There is a thriving trade in oil, wine, and grain.

LE'ONHARDT, GERHARD ADOLPH WILHELM, b. at Neuhaus, Hanover, 1815; educated in jurisprudence at Göttingen and Berlin, entered the service of the Hanoverian government in 1837, and became minister of justice in 1865. For 15 years he was president of the committee of examination in jurisprudence. After the annexation of Hanover to the German empire he was first made president of the court of appeal at Celle, and afterwards chief-justice of the new provinces. Then the king gave him a seat in the Prussian house of lords, and shortly afterwards he received the appointment of Prussian minister of justice. He has done much to improve the criminal code of Germany.

LEON'IDAS I., son of Anaxandrides, king of Sparta, succeeded his half-brother, Cleomenes I., about 491 B.C. When the Persian monarch Xerxes approached with an immense army, Leonidas opposed him at the narrow pass of Thermopylæ (480 B.C.) with a force of 300 Spartans, and rather more than 5,000 auxiliaries. The Persians attempted in vain to win over Leonidas by the promise of making him ruler of the whole of Greece; and when Xerxes sent a herald calling the Greeks to lay down their arms, the Spartan answered: "Let him come and take them." The treachery of one Ephialtes having made it impossible to bar any longer the progress of the foe, Leonidas and his little band threw themselves on the swarming myriads, and found a heroic death.

LEONINE CITY. See ROME, *ante.*

LE'ONINE VERSES, the name given to the hexameter and pentameter verses, common in the middle ages, which rhymed at the middle and end. They were so named after Leoninus, a canon of the church of St. Victor, in Paris, about the middle of the 12th c., or, as others say, after pope Leo II., who was a lover and improver of music. Traces of this kind of versification appear here and there in the Roman poets, especially in Ovid, in some of whose epistles, indeed, they are as common on an average as once in every eight lines. Camden gives some curious specimens from Walter de Mapes, Michael, the Cornish poet, and Dan Elingham, a monk of Linton. The story of the Jew who, having fallen into a refuse-pit on Saturday, would not be helped out, because it was *his* Sabbath, while the Christian, who offered him assistance, refused to do so *next* day, because it was *his*, has been thrown into Leonine verse as follows:

Tende manus *Salomon*, ego te de stercore *tollam;*
Sabbata nostra *colo*, de stercore surgere *nolo.*
Sabbata nostra *quidem* Salomon celebrabis *ibidem.*

Leonine verse is not uncommon in English poetry, e.g.:

Arethusa *arose* from her couch of *snows*
In the Acroceraunian mountains,
From peak and from *crag*, with many a *jag*,
Shepherding her bright fountains.

LEON, ISLA DE, a long narrow island on the s.w. coast of Spain, province of Cadiz, in the Atlantic, separated from the main-land by a narrow deep channel, called

Santi Petri; is 10 m. long and 2 broad. The broadest part is next the main-land. On it are the cities of Cadiz, Isla de Leon, and San Carlos. The surface of the island is flat, and covered with saline marshes, from which the inhabitants obtain large quantities of salt. An ancient bridge across the Santi Petri connects the island with the continent.

LEONOWENS, Anna Harriette Crawford, b. at Caernarvon, Wales, Nov. 5, 1834. Her father, Thomas Maxwell, while acting as aid-de-camp to sir J. Macnaughton, was killed by the Sikhs on the frontiers of Lahore. She married an English officer in India, Thomas Leonowens, who died in that country, leaving her with two children dependent upon her for support. By recommendation of the British consul at Singapore, she was appointed governess in the family of the late first king of Siam, who, having himself been taught English by American missionaries, desired his children to be educated in that language. She held this position for four years, 1863–67, acting at the same time as secretary to the king in his extensive English correspondence. She acquired much influence over the monarch as a mediator in behalf of the victims of arbitrary oppression, and carefully trained his son and successor, who, on coming to the throne in 1868, abolished slavery throughout his dominions. On retiring from her post in 1867 she came to America, and took up her residence in New York. She has published 2 vols., *The English Governess at the Court of Siam*, and *The Romance of the Harem*.

LEON'TIUS, or Leo Pilatus, b. either in Thessalonica or Calabria, at a date unknown; came to Florence in 1360, and was employed by the republic at the request of Boccaccio as a teacher of Greek. He made the first translation of Homer into Latin, and was the first to lecture in public upon the great poet in western Europe. He went to Venice, where he met Petrarch, a pupil of Barlaam. From Venice he went to Constantinople, intending to return to Italy, but died on the voyage across the Adriatic. He furnished Boccaccio with the materials for his treatise on the genealogy of the heathen gods.

LEOPARD, *Felis leopardus*, one of the larger *felidæ* (q.v.), now generally supposed to be identical with the panther (*F. pardus*), although by some they are regarded as varieties, and others still suppose them to be distinct species. Great confusion has prevailed in the nomenclature; the *panther* and *pardalis* of the ancients are not certainly known; the jaguar was erroneously described as the panther by Buffon; the puma is often called panther in America; the leopard is known by the name of tiger in Africa; and as sir J. E. Tennent tells us, it is by mistake often called cheetah in Ceylon. Supposing the leopard and panther to be one species, we may describe it as characterized by a peculiar gracefulness, slenderness, and flexibility of form, with a very long tail, and spotted fur, the spots being arranged in numerous rows along the sides, and each spot composed of five or six small spots arranged in a circle or rosette. The general color is yellowish; the lower parts lighter; the spots darker than the general color of the fur. The leopard is extremely agile, and possesses the power of leaping and also that of climbing trees in great perfection. It haunts wooded places, and is seldom to be found in open regions of long grass, like the tiger. When pursued it takes refuge, if possible, in a tree, and if hard pressed, springs down on its assailants. It is cunning, and adopts devices similar to those of the fox for carrying on its depredations and concealing its place of retreat. Deer and antelopes are its habitual prey; but it is equally ready to feed on pigs, poultry, or whatever may be found in the vicinity of a farm or village. The size and strength of the leopard render it as dangerous to man as any of the *felidæ;* but it generally seems to dread and flee from man, unless assailed. It is very capable of domestication.

LEOPARD, in heraldry. The leopard has been described by some heralds as the issue of the pard and lioness; and the circumstance that such hybrids are unproductive, is assigned as a reason for appropriating that animal to the armorial ensigns of abbots and abbesses. However, the representations of leopards, at least in English heraldry, are so exactly like those of the lion passant gardant, that it has been made a question whether there is any difference between the two, and it has more especially been a keenly contested point whether the three animals in the royal escutcheon of England were lions or leopards. In early times we find them blazoned in both ways, and the true solution of the *quæstio vexata* seems to be, that at one period the heraldic leopard came to be considered as a mere synonym for the lion passant gardant, though the two animals were originally regarded as distinct. In the infancy of heraldry, before distinctive appellations were invented for the different attitudes of animals, it was customary to draw a lion in the attitude since called rampant, and a leopard as passant gardant. This difference of position sufficiently indicating which animal was meant, they were otherwise similarly represented, and no attempt was made to exhibit the spots of the leopard. By and by, as coats of armor were multiplied, it became necessary to difference them by varying the position of the animals depicted; and the blazoners of those days, thinking more of attitude than of zoology, had recourse to a compromise in their nomenclature. The lion was naturally supposed to be rampant and in profile, the leopard passant gardant. When the conventional animal that might stand for either was passant and in profile, he was designed a *lion-leopardé;* and when rampant gardant,

he was a *leopard-lionné*. The king of beasts was very early assumed as his appropriate insignia by the sovereign of England as well as by the sovereigns of other countries in western Europe. The lion was at first borne singly, and his natural attitude, like that of other lions, was considered to be rampant. But when a second and third lion were added, it became less convenient to draw them in the rampant attitude, and the lions became lions-leopardé or passant, as seen in the seal of king John; a further change of position to passant gardant made them heraldically leopards. Edward III., Edward the black prince, and Richard II., speak of their crest of the leopard. Nicholas Serby was designated leopard herald in the reign of Henry IV.; and it was not till the middle of the 15th c. that the lions of England regained their original name.

Though leopards, properly so called, hardly occur in English heraldry, having passed into lions passant gardant, their heads or faces are occasionally borne. If no part of the neck is shown, the proper blazon is a leopard's face; if a portion of the neck is drawn, it is a leopard's head, erased or couped, according as it is cut off evenly or with a jagged edge.

LEOPARDI, Giacomo, Count, a modern poet and classical scholar of Italy, was b. at Recanati, a town in the march of Ancona, on June 29, 1798. Without the aid of instructors, Leopardi, at the age of 17, had attained to a degree of classical scholarship almost marvelous. Latin and Greek he mastered as his own mother-tongue, and composed some of his philological criticisms at the age of 19, when he was elected member of the academy of science at Viterbo. Shortly after, he departed from his secluded home for Rome, where he won the friendship of several celebrated men, amongst others, of Niebuhr, who was deputed to offer him the chair of Greek philosophy, in the university of Berlin, which he declined. Ill health acting on the temperament characteristic of genius, seems to have cast a gloom over his spirit, which deeply tinged his general impressions of men and things. On his return from Rome to his native place, his health grew seriously impaired, from the ardor with which he pursued his varied studies. He finally took up his abode in Florence, where he published his admired *Canzoni* and other works, amidst a conflict with failing health, straitened finances, and deep despondency. In this bitter crisis of his life, he formed a warm friendship with the historian, Antonio Ranieri; and by the delicate and incessant cares of Ranieri and his sister, the shattered, suffering poet was shielded to the hour of his death. From this period, a sensible softening of spirit became manifest in his writings; it seemed as if the poet had learned to value and cling to life and friends only when summoned to relinquish both. He died in his friend's arms at Naples, June 14, 1837, at the age of 39. His remains lie in a small church at Posilippo. The works of Leopardi are all more or less the reflex of his morbid, desponding mind. They are remarkable for originality, vigor, and elegance of style. His collected works were published in 1849, by Le Monnier, at Florence, under the title of *Versi e Prose di Giacomo Leopardi*. His Italian love-sonnets are full of fire and grace; and his ingenious imitations of the antique form of composition, written in Greek and Latin, were so perfect, as to be mistaken by many for genuine long-lost gems of classical literature.

LEOPOL. See Lemberg, *ante*.

LEOPOLD I., George Christian Frederick, King of the Belgians, son of Francis duke of Saxe-Coburg, was b. Dec. 16, 1790. He received an excellent literary and scientific education, and at the conclusion of his studies had the reputation of being one of the best informed princes in Europe. The marriage of his sister Juliana with the grand duke Constantine having closely allied the house of Saxe-Coburg with the imperial family of Russia, he became a gen. in the Russian army; but the menaces of Napoleon compelled him, in 1810, to resign his commission. He afterwards again joined the Russian army, and was present at the battles of Lützen, Bautzen, Leipsic, and Kulm. Having visited England after the peace of 1815, he won the affections of the princess Charlotte, the heiress of the throne. Leopold was now naturalized by act of parliament in 1816, and received an annual pension of £50,000. The marriage took place on May 2, 1816; but the princess died in child-bed on Nov. 5, 1817, and her child did not survive. Prince Leopold now lived in complete retirement, sometimes in London, and sometimes at his seat of Claremont. He received, in Feb., 1830, the offer of the crown of Greece, and at first favorably entertained the proposal, but afterwards rejected it, because of the dissatisfaction of the Greeks with the arrangements determined upon by the great powers. In June, 1831, he was elected, by a national congress, king of the Belgians, and on July 21 of that year his inauguration took place at Brussels. In 1832 he married the princess Louise, daughter of Louis Philippe, king of the French, who died in Oct., 1850, by whom he had issue the crown prince Leopold, duke of Brabant, another son and a daughter. As a monarch, he conducted himself with great prudence, firmness, and moderation, with constant regard to the principles of the Belgian constitution. He died Dec., 1865, and was succeeded by his son, Leopold II.

LEOPOLD II., Louis Philippe Marie Victor, King of Belgium, b. April 9, 1835, a son of king Leopold I. and queen Louisa, daughter of Louis Philippe of France. Married in 1853 to Marie Henriette, a daughter of the archduke Joseph of Austria: ascended the throne, Dec. 10, 1865.

LE'OPOLD I., Emperor of Germany, 1640–1705; b. Austria, son of Ferdinand III., of the house of Hapsburg, and of Maria Anna of Spain. He was educated for the church, but on the death of his brother in 1655 he ascended the throne of Hungary, and in 1657 was proclaimed king of Bohemia. In 1658, after the death of Ferdinand III., a contested election for emperor was decided in his favor and against Louis XIV. of France, notwithstanding that the latter had gained four of the electors over to his side. His reign, continuing through the half century that followed, was remarkable for the number of important wars which occurred, making that period an eventful one for the whole continent of Europe, in all of which he was prominently concerned. In 1657 he assumed the government of the hereditary states of the house of Austria, and, finding that the Turks had invaded Hungary and Moravia, he made war on them, and with his gen., Montecuccoli, an Italian, completely routed them at the battle of St. Gothard, near Kenhausel, in 1664, after which a truce of 20 years was arranged. In July, 1683, he was defeated near Raab by an army of 200,000 men, the combined forces of the porte, under Kara Mustapha, and the disaffected Hungarian nobles, with Tekeli (whom they chose as their leader in 1682), who had joined the Turks, Louis XIV. secretly inciting the Turkish invasion. In Sept., 1683, with Sobieski of Poland, who marched from Cracow with 16,000 men, and the duke of Lorraine with 70,000 men of the imperial forces, who made a junction at the Danube, he fought a battle in the vicinity of the Austrian capital, defeated the Turks, who had captured it, saving Vienna, and ridding Hungary of the Turkish troops after a series of desperate encounters. In 1686 Buda was retaken after a memorable siege. In 1687 the diet of Presburg acquiësced in the proposition to make the male line of the Hapsburgs hereditary in Hungary. In 1691 occurred the victory of Zalánkemén. In 1697 he brought the Turkish war to a close, by gaining, with prince Eugene, a great victory near Zenta in Hungary, and obtained secure possession of Transylvania in 1699. In 1701 he renewed his alliance with England and Holland, and in the following year a number of victories were won by his army under command of prince Eugene, and in 1704 the triumph of Blenheim in connection with the allied powers. He carried on three wars against Louis XIV., one followed by the treaty of Nimwegen in 1678, one the peace of Ryswick in 1697, and the war of the Spanish succession, in which his son, the archduke Charles, laid claim to the throne made vacant by the death of Charles II. in 1700, and the termination of which, as well as that of the great Hungarian insurrection under Franz Rakoczy, he did not live to see. The most significant events of his reign were the establishment of a ninth electorate in favor of Earnest Augustus, duke of Brunswick-Lüneburg, who in 1692 became the first elector of Hanover; the assumption of the regal title by Frederic, elector of Brandenburg and duke of Prussia, in 1701; and the establishment of a permanent diet, attended by the electors' representatives instead of the electors in person. He was married three times; his first wife was Margarita Theresa, a Spanish princess. He was succeeded by his eldest son, Joseph I.

LEOPOLD II., Emperor of Germany, 1747–92; b. Germany; son of emperor Francis I., of Lorraine, and Maria Theresa of Austria, and brother of Marie Antoinette. In 1765, on attaining his majority, he succeeded to the throne of Tuscany, which had been taken in the place of Lorraine, as Leopold I. of Tuscany, and ruled 25 years. He then resided in Florence. He governed with great discretion, advocating reform in every department of church and state, making a revolution in ecclesiastical matters, establishing a new criminal code and penitentiaries. In 1782 he abolished the inquisition, and during his reign removed the penalty of death, equalized the land tax, and favored free trade. He founded schools and almshouses. In 1790, on the death of his brother, Joseph II., he assumed the government of the Austrian dominions and the German empire, and removed to Vienna. Finding that with his possessions he had inherited a troublous condition of state affairs, in 1790 he made satisfactory terms with Frederick William II. at Reichenbach, and was unanimously elected emperor of Germany. Out of respect to Hungary, he bound himself by an oath to act strictly in accordance with constitutional law, restoring to the Belgians the privileges of which they had been deprived, and giving Tuscany to his son Ferdinand. In 1791 pacific terms were arranged with Turkey at Sistova, and at Pilnitz, in a council composed of Frederick William Augustus of Saxony and others, a plan was concerted relative to the anticipated movement of the French revolution and the restoration of Louis XVI. In 1792 he formed an alliance with Prussia. His wife was Maria Louisa, daughter of Charles III. of Spain. He had 16 children. His eldest son, Francis, was the last of the elective rulers, and was styled Francis I. of Austria and Francis II. of Germany. In 1874 his correspondence with Francis II. and the empress Catharine was published.

LEOPOLD II., Grand Duke of Tuscany, 1797–1870, a son of the grand duke Ferdinand III. In 1847 he granted a free constitution; fled to Naples in 1849, but was recalled by his subjects shortly afterwards. The national troubles that followed compelled him in 1859 to flee with his family to Vienna. In doing so he abdicated in favor of his son, but this action was disregarded, Tuscany being by vote of the people incorporated into the kingdom of Italy. Died an exile in Bohemia.

LEOPOLD I., Prince of Anhalt-Dessau, 1676–1747. The emperor, Leopold I., observing his passion for military affairs, made him in 1688 col. and chief of a regiment of horse. On the death of his father, a Prussian field-marshal, in 1693, he entered the Prussian service and took command of his father's regiment. He was shrewd, passionate, and self-willed, and having as a youth fallen in love with the daughter of a druggist, married her in spite of all remonstrances when he became of age, inducing the emperor to raise her to princely rank. From 1698 to 1713 he served with distinction and in very responsible positions under Eugene and Marlborough in the Netherlands, on the Rhine, and in Italy, and when Frederick William I. ascended the throne of Prussia, he placed him at the head of the army. He was the very incarnation of the military spirit, and the later triumphs of the Prussian army may be traced to the influence of his genius for military organization and discipline. He was great alike in the capacity for details and in the qualities which fit men to handle the largest armies. In the Swedish and Silesian wars he won great distinction. Died at Dessau.

LEOPOLD OF **BABENBERG** or BAMBERG, the descendant of a noble family which derived its origin from the Frankish kings, was the first hereditary markgraf of Austria (983 A.D.), and his descendants continued to rule over that country till the line became extinct, in the person of Frederick the warlike, in 1246. This family played an important part in the Guelph and Ghibelline conflicts of the 12th c., and obtained the duchy of Bavaria, in 1138, on the rebellion of Henry the proud, but after a long conflict with his son, Henry the lion, was compelled to resign it to that prince in 1156.

LEOS'THENES, a distinguished gen. of Athens, a favorite with the mercenary soldiery, who chose him for their leader. He was famous for the warmth with which he espoused the cause of democracy, and the violent tone of his speeches drew forth the wise reproof of Phocion: "Young man, thy words are like the cypress, tall and large, but they bear no fruit." He belonged to the party of Demosthenes. Among his exploits were the defeat of the Bœotians, near Platea, and the successful opposition to the entrance into Greece of Antipater, at Pylæ, whom he defeated and imprisoned in Lamia, a town in Thessaly. From this siege the Lamian war took its name, and in one of the battles he was killed. His portrait was painted by Arcesilaus, and placed in the Peiracus, where it was esteemed by Pausanias an object worthy of notice. He left an untarnished reputation, but with him passed away the last remnant of the glory of Athens.

LE PAGE, JULES BASTIEN. See BASTIEN–LE PAGE

LEPANTE, NICOLE REINE ÉTABLE DE LABRIÈRE, Madame, 1723–88; b. Paris; was married in 1748 to the famous mechanician and clock-maker Jean-André Lepante, and was the principal author of his *Traité d'horlogerie*. She assisted Clairant and Lalande in the calculation of the return of Halley's comet in 1757. She was the author of *Observations* published in the *Connaissances des Temps*, an astronomical annual of the academy of sciences; of *Tables of the Sun, Moon, and Planets;* of *Expositions du calcul Astronomique*.

LEPAN'TO (ancient *Naupac'tus*), now called by the Greeks *Epacto*, the chief town of the eparchy of the same name, in the province of Ætolia-Acarnania in Greece, is situated on the n. side of the gulf of Lepanto, 25 m. e. of Missolonghi. The town, which is ill built, and has a miserable appearance, is the seat of an archbishop, and has an excellent port. Pop. 2,600. In the middle ages it was given by the Greek emperors of the east to the Venetians, who fortified it so strongly, that in 1477, it stood a siege of four months by 30,000 Turks, and was only taken in 1499 by Bajazet II., at the head of 150,000 men. Near Lepanto took place the celebrated naval battle between the Turks and Christians in 1571, in which the latter, commanded by Don John of Austria (q.v.), achieved a decisive victory.

LEPANTO, BATTLE OF, a naval engagement fought Oct. 7, 1571, in the gulf of Lepanto, near Corinth, between the combined fleets of Spain, Venice, Genoa, Malta, and the papal states against the whole maritime force of the Turks. The Christian allied fleet, consisting of 210 sail, was commanded by Don John of Austria. The Ottoman fleet numbered about 300 galleys under command of Ali Pasha. The Christian fleet was met by the Turks where the gulf of Patras flows into the gulf of Lepanto; the Turkish line was broken, the admiral Ali was killed, and Cervantes was dangerously wounded and his left hand rendered useless for life. The Venetian ships making an attack at the same time on the Turkish right, a crushing defeat of the Turks was accomplished, but Barbarigo, the Venetian commander, was mortally wounded, More than 3,000 Christians were killed. The Turks lost 30,000 men in killed and wounded, and 107 galleys were taken, besides a large number sunk. Thousands of Christian galley slaves were liberated by this victory. The Christian fleet having been stationed, previous to the attack, at the mouth of the Acheloüs river in the neighborhood of the Curzolari islands, the name of the latter has been given to the battle by Italian writers.

LEPANTO, GULF OF, a considerable body of water lying n. of the isthmus of Corinth, s. of Hellenas, and n.e. of the Morea. It is 75 m. in length and about 13 m. in breadth, except where the bay of Salona (the Crissæan gulf of the ancients) stretches away for 8 m. toward the n., where the bay of Corinth extends to the s.e. and in the direction of the Alcyonian sea, now called Livadostro bay. It once included the gulf

of Patras, and was called the Corinthian gulf. It is fed from the w. by the gulf of Patras, through the straits of Lepanto, sometimes called the Little Dardanelles, which flow past the city of Lepanto, connecting the gulf with the Mediterranean. The adjacent country presents an irregular coast line; the soil is generally fertile and the surface is hilly. The gulf in such environment presents the appearance of a picturesque inland lake.

LEPIDODENDRON, a genus of fossil plants, abundant in the coal measures. Some species were of small size, but the greater number were large trees, 40 or 50 ft. long, and more than 4 ft. in diameter. They taper upwards, and branch generally in a dichotomous manner. The surface is either covered with narrow, sharp-pointed, scale-like leaves, or marked with lozenge-shaped spaces—the scars of the fallen leaves—arranged in a spiral manner. The leaves which are found separated from but associated with the trunks have been placed in a provisional genus under the name of *lepidophyllum.* The fruits are elongated, cylindrical bodies, composed of a conical axis, around which a great quantity of scales are compactly imbricated.

Brogniart and J. D. Hooker consider that lepidodendra are gigantic lycopods. Their modern representatives would thus be a class of small, generally creeping, moss-like plants, the largest not being more than 3 or 4 ft. high. In their form and in the structure of their fruit, they certainly approach them more nearly than any other living plants. Lindley, however, sees in the coniferæ, and especially in the Norfolk island pines, the closest resemblances to this ancient class of plants.

LEPIDOP'TERA (Gr. scaly-winged), an order of insects, undergoing complete metamorphosis, having the mouth in their perfect state exclusively adapted for sucking, and further characterized by four membraneous wings covered with minute, closely set scales. The order contains a vast number of species, abounding chiefly in warm climates; but the British species alone are about 2,000. The lepidoptera are very naturally divided into three great sections—*diurna*, *crepuscularia*, and *nocturna*, so named because almost all those of the first section are to be seen on wing only during the day, those of the second more generally during the twilight, whilst those of the third are more nocturnal; their popular designations respectively being Butterflies, Hawk-moths, and Moths. See these heads. Among the lepidoptera are included many of the largest and most beautiful of insects, with colors as exquisitely varied as they are brilliant; there are also many—particularly among the moths—of small size and sober hue, but not one of them can be denied the praise of beauty. The difference between the larvæ and the perfect insects in food, structure, and habits, is very wonderful. The larvæ are described in the article Caterpillar, the pupæ in Chrysalis. The perfect insect feeds only on the nectarious juices of plants. The principal organs of the mouth are the *maxillæ*, the mandibles and labrum being reduced to mere rudiments; and the maxillæ appear in the form of two long slender filaments, which combine to form a proboscis or trunk, spirally rolled up when not in use. This trunk is capable of great variety of movement, and is of extremely delicate structure.—The scales of the wings are of very various forms, but with a general similarity. Some of them are figured in the article Butterfly. The wings are generally large, and are not folded when at rest. The three segments of the thorax are much united. The abdomen has neither sting nor ovipositor. None of the lepidoptera form *societies*, although great numbers are often found together. Silk is the product of some of them.

LEPIDOSI'REN (or *protopterus*), a very remarkable genus of animals, one of the connecting links between amphibia (or batrachia) and fishes, and ranked by some naturalists with the former, and by some with the latter. Owen strenuously maintains the proper place of this genus to be among fishes. There are several species of lepidosiren, of which the best known is *L. annectans*, an inhabitant of the upper part of the river Gambia. It is about a foot long. The bones are very soft and cartilaginous, or even gelatinous, except those of the head, which resemble in substance those of osseous fishes. The scales are cycloid. The dentition is very remarkable. The jaws are furnished with an undulating ribbon of bone, covered with enamel, the undulations of the upper and lower jaw adapted to each other, and along the edges are small sharp teeth. There are free filamentary gills situated under gill covers, as in osseous fishes, but two of the arterial arches, which ordinarily supply the gills of fishes with blood, are represented in lepidosiren by trunks, which proceed to the double air-bladder, and ramify over its cellular surface, so that the air-bladder, having a communication with the mouth, is capable of serving to a certain extent the purposes of lungs, and the animal is enabled to sustain a torpid existence during the dry season in mud, in which it forms for itself a kind of nest, which has been likened to the cocoon of an insect, by means of a mucous secretion from its body. Specimens of *L. annectans* have sometimes been brought from Africa with plants, among the roots of which they have taken up their residence. Numerous specimens have been kept alive in the zoölogical gardens of London and the Crystal Palace, and their habits have been carefully studied. They do not seem to need the annual period of torpidity, for which, as forced upon them in their native country, they are so well prepared. They readily eat any kind of animal food; frogs are particularly acceptable; and when placed in the same tank with gold-fishes, they kill them by a single bite close to the pectoral fins, approaching them from below, biting out the piece, and

often eating no more of the fish than that one bite. In its native country, the flesh of the lepidosiren is much esteemed. See Nicholson, *Handbook of Paleontology* (1881).

LEPIDOSTE'IDÆ, a family of fishes which are the only living representatives of the order *rhomboganoidea*. They have an elongated, nearly cylindrical body, covered with rhomboidal scales. The head terminates in a long, beak-like snout, with nostrils near the end of the upper jaw, which is longer than the lower. The dorsal fin is set well back and above the anal fin. They include the genus *lepidosteus*, to which the gar and alligator gar-fish of the North American lakes and rivers belong. They somewhat resemble the true gar-fishes in appearance. See GAR-FISH, *ante*.

LEP'IDUS, an illustrious Roman family of the ancient Æmilian gens. It makes its first appearance in history about the beginning of the 3d c. before Christ, and was long one of the most distinguished in the patrician order, reckoning among its members many who held the greatest dignities in the state, consuls, augurs, pretors, military tribunes, censors, and heads of the priesthood. It disappears about the close of the 1st c. A.D. The only individual, however, who requires special mention, and that not because of his talents, but because of the important events in which he took a part, is MARCUS ÆMILIUS LEPIDUS, who, when war broke out (49 B.C.) between Cæsar and Pompey, declared for Cæsar, who appointed him, during his own absence in Spain, dictator of Rome, a *magister equitum* (47 B.C.), and his colleague in the consulate (46 B.C.). He afterwards supported Antony, and became one of the triumvirate with Octavianus and Antony; but his weakness of character, and want both of military talents and of statesmanship, made him of very inferior importance to the other two, who assigned him Africa as his province (40–39 B.C.). After the defeat of Sextus Pompeius, he thought to have maintained himself in Sicily against Octavian, but his soldiers deserted him, and went over to his rival, who, however, allowed him to retain his wealth and the dignity of pontifex maximus. He died 13 B.C.

LEPIS'MA, a genus of wingless insects, of the order *thysanura*. The best known species is *L. saccharina*, sometimes called the *sugar louse*, because it is often found about old sugar barrels. It is said to have been introduced into Britain from America. All the species of lepisma and of the family *lepismidæ* inhabit moist places, and feed on decaying vegetable substances. They have a flattened, spindle-shaped body, terminating in three long bristles. They run swiftly. They are mostly covered with silvery scales, which are much used as test objects for the microscope.

LE'PORIDÆ. See HARE.

LEPORIDE, the name given by the French to a remarkably prolific hybrid between the common European hare and the rabbit. It is extensively bred in France, where it is highly esteemed for food.

LEPRA is a Greek term which is now generally employed by medical writers to designate a scaly affection of the skin. These scales occur in circular patches of a grayish color, with a red, slightly elevated margin. If the scales fall off or are removed, the surface of the skin is red and shining, and new scales rapidly form. The patches vary in size, being often about an inch in diameter, and sometimes much larger. Lepra most commonly occurs on the limbs, and especially on those parts where the bones are most thinly covered. Its duration is uncertain, and if not interrupted by treatment, it will frequently continue for years, without materially affecting the general health. It is not contagious. The local application of tar ointment, or the iodide of sulphur ointment, will sometimes remove it. If it does not yield to this treatment, small doses of Fowler's arsenical solution (3 to 5 minims) may be prescribed, twice or thrice a day, either in water or in the decoction of dulcamara, which is supposed to be specially beneficial in chronic skin diseases.

LEPROSY. This term has been very vaguely used both by medical and other writers; we shall here restrict it to the *lepra tuberculosa*, as it appears to have prevailed during the middle ages and down to modern times in Europe, and as it is now met with in various warm climates; the scaly variety, which in reality is a perfectly separate disease, being noticed in the article LEPRA. The affection here discussed is identical with the *elephantiasis of the Greeks*, and the *lepra of the Arabians*, while it is altogether different from the *elephantiasis of the Arabians*, and the *lepra of the Greeks*, which latter is the *scaly lepra* of our own day.

The most prominent symptoms of leprosy are summed up by Dr. Copland in his *Medical Dictionary* as follows: "Dusky red or livid tubercles of various sizes on the face, ears, and extremities; thickened or rugose state of the skin, a diminution of its sensibility, and falling off of the hair, excepting that of the scalp; hoarse, nasal, or lost voice; ozæna; ulcerations of the surface and extreme fœtor. These tubercles vary in size from that of a pea to an olive. Of all parts, the face is particularly affected, and especially the nose and ears.

The leprosy of Iceland, described by Dr. (afterwards sir Henry) Holland and others, that of the Faröe and Shetland islands, described by Dr. Edmonston and others, and that still met with in Africa, in the East and West Indies, and in many tropical islands, are all identical with the disease now described—the leprosy of the middle ages.

Closely allied to it, and often confounded with it, are: 1. The *lepra anæsthesiaca* of

Winterbottom, Copland, and others, which is characterized by remarkable absence of sensibility of the general surface, by comparative smoothness of the skin, and ulceration and falling off of the fingers and toes. The cases recorded by Winterbottom and Copland were seen in Africa.

2. The *Jewish leprosy*, regarding which nothing certain is known. The term leprosy (or *berat* in the Hebrew) was probably applied by the priests to various cutaneous affections, particularly those which were of a chronic and contagious nature. "It is probable," says Dr. Copland, "that framboesia or the yaws (a tuberculous disease) was one of these, as well as other inveterate cutaneous maladies arising from the modes of living, the habits and circumstances of the Jews at that time, and of the Egyptians; and that these maladies have changed their characters, owing to changes in the nature and combinations of their exciting causes."

Nothing certain is known regarding the causes of this disease. The investigations of Mr. Stewart at Tranquebar, where it is very prevalent, led him to conclude: 1. That women are less liable to this malady than men; 2. That it is hereditary; 3. That its contagiousness is extremely problematical; 4. That a fish-diet is found to render every symptom worse; 5. That poor living, want of cleanliness, and exposure to cold and damp, are constant attendants on this affliction. Dr. Copland ascribes its origin to the use of semi-putrid meat and fish, and of rancid oils; to insufficient vegetable food; and to the contact of matter discharged from leprous sores.

The disease may continue without causing death for many years. When it is far advanced, it is probably incurable and even in the early stages its cure is uncertain. Probably such alterative medicines as corrosive sublimate and arsenious acid in minute doses are the most likely to be of service. Sulphur fumigating baths and various medicated water-baths have also been recommended.

LEPSIUS, Karl Rich., a distinguished German investigator of Egyptian antiquities, was b. at Naumburg, Dec. 20, 1813. His father, an advocate and magistrate there, was a zealous antiquary, and published many works on the antiquities of that part of Germany. The younger Lepsius studied at Leipsic, Göttingen, Berlin, and Paris. His first work was his *Die Paläographie als Mittel der Sprachforschung* (Berl. 1834), for which he obtained the Volney prize of the French institute. This was followed by works on the most ancient alphabets and other kindred subjects. In 1836 he associated himself intimately with Bunsen at Rome, and eagerly prosecuted his favorite studies there. Between 1834 and 1842 he published his *Lettre à M. Rosellini sur l'Alphabet hiéroglyphique* (Rome), and a number of dissertations on the monuments of Egyptian art and their general architectural style, which were inserted in the *Transactions* of the archæological institute. He also applied himself to the study of the ancient Etrurian and Oscan languages, the remains of which he published in his *Inscriptiones Umbricæ et Oscæ* (Leip. 1841), and other works. In 1842 he was placed at the head of an antiquarian expedition sent to Egypt by the king of Prussia, and on his return was appointed ordinary professor in Berlin. His *Denkmäler aus Aegypten und Aethiopien* (in folio, 1853–57), a magnificent work, was published at the expense of the king of Prussia. His *Chronologie der Aegypter*, and *Ueber den ersten Aegypt. Goetterkreis*, laid the foundation for a scientific treatment of the earlier parts of Egyptian history. He has connected with the study of the more familiar departments of Egyptian archæology the investigation of the languages, history, and monuments of the regions further up the Nile. Other works are *Briefe aus Aegypten, Aethiopien, und der Halbinsel des Sinai* (1852); *Ueber einige Ergebnisse der Aegyptischen Denkmäler*, etc. (1853); *Das allgemeine linguistische Alphabet* (1855), on which Lepsius based his *Standard Alphabet for Reducing Unwritten Languages and Foreign Graphic Systems to a Uniform Orthography in European Letters* (1863); *Die Altägyptische Elle* (1865); *Die Metalle in den Aeg. Inschriften* (1872). He has also written on Chinese, Arabic, and Assyrian philology.

LEPTANDRA, a generic name proposed by Nuttall for *veronica virginica*, or culvus physic. It is the pharmaceutical name for that plant, and the resinoid extracted from it has the name of *leptandrin* in the books and at the drug-stores. In America it grows in rich woods from Vermont and Wisconsin southward. It is often cultivated; blooms in July and Aug. Leaves whorled in fours to sevens; short leaf-stalk; leaf lanceolate, pointed, finely serrate; spikes panicled; stamens much exserted; corolla small, nearly white. See Speedwell (*ante*).

LEPTOCARDIA, an order of fishes according to Müller's classification, including but a single living representative, the anomalous *amphioxus lanceolatus*, or lancelet. See Lancelet, *ante*, and Pharyngobranchii.

LEPTOSPERMUM, a genus of trees and shrubs, natives of Australia, New Zealand, etc., of the natural order *myrtaceæ*, sub-order *leptospermeæ*. They are evergreen, with leaves somewhat resembling those of myrtles. Some of them bear the name of Tea-tree, as *L. lenigerum*, *L. baccatum*, *L. flexuosum*, and *L. grandiflorum*, because the leaves have been used as a substitute for tea. *L. scoparium* is sometimes called the *New Zealand tea-plant*, sometimes the *broom-tree* or *dogwood-tree*. It is common both in New Zealand and Australia.

LEQUESNE, Eugene Louis, b. Paris, 1815; admitted to the bar in 1839, but soon relinquished the law and applied himself to the study of sculpture at Rome under Pradier, and began to exhibit in 1845. His works are a "Dancing Faun," in the garden of Luxembourg; "Victory, on Napoleon's Tomb;" "Bathing Girl;" "Lesbia;" "A Roman Slave;" "Pegasus," for the new opera-house.

LERAY, Francis Xavier, D.D. See page 898.

LERCARA DE' FREDDI, a t. of Sicily, in the province of Palermo, 30 m. s.s.w. from Palermo, in an inland mountainous district. Most of the inhabitants are employed in the sulphur mines of the vicinity, and the road to Palermo is much occupied by carts carrying sulphur for exportation. Pop. above 9,000.

LERDO DE TEJA'DA, Sebastian, b. Jalapa, Mexico, 1825; educated at Puebla for the priesthood, but afterwards studied law at a college in the city of Mexico. He was received at the bar in 1851, and in 1855 was a magistrate, and two years later was made minister of foreign affairs. In 1861 he became a member of congress, and was re-elected, serving also as president of that body. In 1863 he was, first, minister of justice, and then minister of foreign affairs, always being allied with the liberal party. He was one of the most prominent leaders in opposition to the French intervention in Mexico, and preserved a consistent attitude of antagonism to the unfortunate Maximilian, the representative in Mexico of the aggressive policy of the French empire. The execution of the Austrian arch-duke may be legitimately charged to the determination of Lerdo de Tejada and Benito Juarez. On the return of the republican government to the capital in 1867, after the withdrawal of the French, Juarez was re-elected president, and Lerdo became vice-president, succeeding Juarez as president in 1872, on the death of the latter. In Oct. of that year he was elected president for four years. In 1875–76 a revolution broke out in several Mexican states at once, and gen. Porfirio Diaz came forward as the leader of the insurrection, having previously headed similar revolutionary movements. In July, 1876, an election took place, and Lerdo was continued at the head of the government, his term of office to expire in Nov., 1880. Diaz, at the head of an army, marched against the capital, and on Nov. 26, 1876, president Lerdo and his cabinet fled to Acapulco to take passage on the steamer running between San Francisco and Panama, leaving Diaz in supreme control of the government. Lerdo visited the United States early in 1877, and was hospitably received in New York and other principal cities. He has not since been prominent in political affairs. He is characterized as being profoundly skilled in politics and diplomacy, an astute and courageous leader, and a pronounced adherent of the policy of reform in his native country.

LERICI, a t. and port of n. Italy, on the gulf of Spezia, which has extensive lead-works belonging to an English company, the ores being brought from Sardinia. Pop. about 3,500. The port is frequented by numerous vessels; the town is walled, and protected by a castle. In the 11th and 12th centuries, Lerici was included in the territory of Pisa, when it was strongly fortified against the rival states of Lucca and Genoa. At Lerici the famous transfer of Andrea Doria's services from Francis I. to the emperor Charles V. took place.

LÉRIDA, a province of n.e. Spain, in the district of Catalonia; separated from France by the natural frontier line of the Pyrenees mountains, and the little republic of Andorra with its snow-capped mountain-peaks; 4,775 sq.m.; pop. 330,348. In the n.w. section are the peaks of Maladetta and Pie Nethou, rising to a height of 11,168 ft., the culminating point of the Pyrenees. It is drained by affluents of the Ebro, a rocky, rapid river, rising in the mountains and flowing s.e., and by the headwaters of the Tér and the Segre. Its valleys and plains are kept green and fertile by numberless little rivulets that trickle down from the mountains, and which, diverting the river water, make its soil the richest, as it is the most cultivated, in Spain. Its hills are well wooded, pine trees growing high up on the mountain side, and contain valuable mineral deposits. It contains several considerable fortified towns, with institutions of learning, including Lérida in the extreme s., one of the most important military posts in Spain.

LÉRIDA, a t. of Spain, capital of the province of the same name, on the river Segre, a tributary of the Ebro, about 100 m. w.n.w. of Barcelona. It is built partly on a plain and partly on an eminence. The town—which is important in a military point of view—is surrounded by walls and a wet fosse, and commanded by the citadel. It is a gloomy labyrinth of mean-looking streets. The castle has an old cathedral attached to it of the 13th c.; the town, a new and imposing one of the 18th century. Lérida carries on manufactures of woolen, cotton, leather, glass, and gunpowder. Pop. 19,627.

Lérida is probably the Celtiberian *Ilerda*. In the neighboring plain, Scipio Africanus defeated Hanno, and at a later period Cæsar, the lieutenants of Pompey. A council was held at Lérida 564 A.D.

LÉRINS, THE, islands of the Mediterranean sea, situated 2½ m. from the s.e. coast of France, between capes Roux and Guaroupe, belonging to the department of Alpes-Maritimes. The group includes two small islands of great historic interest. Ste. Marguerite (the Leron of the ancients), 2 m. in length, is nearest the seaport of Cannes, 15 m. s.w. of Nice, a favorite resort for invalids in the winter season, brought into public notice in 1837 by lord Brougham. At Frejus, near by on the mainland, Napoleon

anded when he escaped from Elba in 1815. It contains the garrisoned citadel, Monterey, now a military prison, where from 1686 to 1698 the mysterious "man in the iron mask" was imprisoned. It is shaded by thick woods, and from the same prison in 1874 marshal Bazaine made his escape by night. Its monastery of Ste. Marguerite held the royal captive Francis I., king of France, while on his way to Madrid, a prisoner of war. Its companion island, St. Honorat (the Lerina of the Romans), of even less area, contains the ruins of an abbey, the convent of Lerins, of the Benedictine order, with fortifications, founded by St. Honoratus, archbishop of Arles, becoming in the 5th c. the point where were centered the most vigorous theological minds of that age in Europe. Among its abbots appear the names of St. Vincent de Lérins and St. Hilary. Having been destroyed by the Saracens, the convent was restored by the Benedictines, but in the turbulent outbreak of the beginning of the French revolution it was reduced to a mass of ruins, and has since been inhabited only by a few monks.

LERMONTOFF', Mikhail Ivanovitch, 1814–1841; was of a noble family; entered the military service, and early became an officer of the imperial guards. A poem written on the death of the poet Pushkin, who was killed in a duel in 1837, in which the author made severe insinuations against the court, so displeased the emperor Nicholas, that he struck him off the list of the officers of the guard, and sent him to serve in the army of the Caucasus, where he remained until his death. The poem, which long circulated in manuscript in Russia, was printed for the first time in 1856 in the *Polar Star*, a Russian periodical published in London. While in the Caucasus, he wrote a novel entitled *The Hero of our Time*. Pechorin, a fellow-officer in the army of the Caucasus, thinking himself described in the novel, challenged and killed Lermontoff. Most of his poems were composed while in the army, and published in St. Petersburg, gaining for him the title of the poet of the Caucasus. The most prominent were, *The Novice, or the Young Circassian; The Dream of Valerika; The Demon; The Song of the Czar Ivan Vasilievitch; Hadj-Abrek*, a drama; *Ismail Bey*. Most of these were collected after his death, and in 1852 a German translation was published in Berlin. Next to Pushkin, he is considered the most distinguished Russian poet of the Byronic school.

LERNE'ADA, an order of crustacea, having the mouth formed for suction alone, and in organization very inferior to any of the other crustaceans, so that the genus *lernæa*, from which the order derives its name, was placed even by Cuvier not among crustaceans, but *entozoa*. The true relations of these creatures, however, after having been rendered probable by others, were finally demonstrated by Von Nordmann. A remarkable circumstance is that, when young, they resemble the higher crustaceans much more than in their mature state; having then organs for swimming, which they are capable of doing with great agility, and eyes—or an eye as in cyclops, to which they exhibit much general resemblance; whilst, when mature, they are fixed to a single spot, as parasites on fishes, and are destitute both of eyes and of organs of locomotion. The number of the lerneada is very great, each kind of fish having apparently its own peculiar species of parasite. Some of them adhere to the eyes of fishes, which they render blind, some to the gills, some to other parts of the body. The ancients were acquainted with such parasites of the tunny and sword-fish, and Aristotle mentions them as causing great annoyance to the fishes infested by them. The lerneada assume in their mature state very various and grotesque forms.

LERO, or Leros, an island off the s.w. coast of Asia Minor near Caria, and not far from the mouth of the Mendere river. It forms one of a cluster of islands in the Ægean sea, called the Sporades, and is governed by Turkey; n. lat. 37° 10′, e. long. 26° 50′; pop. 2,000. It is 9 m. in length, varying from one-half to 4 m. in breadth. On the e. side are interesting ruins of a castle; also a considerable town, Lero, overlooking a bay. It was colonized about 500 B.C. The coast is irregular, the surface is mountainous, and the soil in the valleys is fertile, producing grain, olives, wax, and honey. Sheep are raised to some extent. The site of an ancient temple dedicated to the goddess Artemis Parthenos is now occupied by a convent.

LEROT. See Dormouse, *ante*.

LEROUX, Pierre, 1798–1871; b. France; having pursued a course of scientific study in the schools of Paris and Rennes, entered a printing-office in the French capital. In 1824, with De Broglie, Cousin, and others, he established the *Globe*, a newspaper of a literary and philosophic character, which expounded the views of the *doctrinaires*, and afterward in the revolution of 1830, when in sole charge of the journal, he embraced the tenets of the St. Simonians and helped to disseminate their doctrines. In 1831, a year before the career of Enfantin, one of the founder of St. Simonism, culminated in imprisonment, he separated from him, and joined Jean Earnest Reynaud as his collaborator on the *Revue Encyclopédique*, which they conducted for three years with small success. In 1838, with the same associate, he commenced the *Encyclopédie Nouvelle*. In 1839 he published *De l'Humanite de Son Principe et de Son Avenir*, elucidating his philosophical and socialistic ideas, and giving his conception of the progressive nature of all things. In 1841, associated with Viardot and Mme. George Sand, he established the *Revue Independante*. In 1845 he removed to Boussac, devoted himself to journalism in the direction of radical politics, and was elected mayor; he was also chosen representative

to the national assembly. In 1851 he took up his residence in Jersey, but in 1869 in the general amnesty he returned to Paris, having passed some time in Switzerland. As a socialist he is considered pure, honest, and genuine in his convictions, combining mystical doctrine with a system for social organization. In 1843 he published a translation of Goethe's *Werther*, with a preface by Mme. George Sand. Besides several works of greater pretensions he published *Job*, a drama, and *The Samarese Beach*, a philosophic poem.

LE ROY, a village and township of Genesee co., N. Y., 25 m. s.w. of Rochester and 50 m. e. of Buffalo, on the Erie, Central, and State Line railroads. Pop. of village, 2,634; of township, 4,469. It has 7 churches, 2 banks, 2 weekly newspapers, and various mills on Oatka creek. It is the seat of Ingham university for ladies, and has an academic institute, an art conservatory, and a public library.

LEROY, WILLIAM E., b. N. Y., 1818; entered the navy as midshipman in 1832, promoted to be a past midshipman in 1838, a lieut. in 1843, a commander in 1861, a capt.; in 1866, a commodore in 1870, and a rear-admiral in 1874. He commanded the *Keystone State* in the engagement with confederate iron-clads off Charleston in Jan., 1863, and the *Oneida* at the battle of Mobile bay, Aug. 5, 1864, and on both occasions was conspicuous for skill and bravery.

LEROY DE SAINT ARNAUD, JACQUES, a French marshal of the second empire, was b. at Paris, Aug. 20, 1801, entered the army in 1816, but found it necessary more than once to leave it, so that, in 1831, after a lapse of fifteen years, he was only a lieutenant. In 1837 he was appointed captain of the foreign legion, and first rose to eminence in the African wars. The valor he exhibited at the siege of Constantine won him the cross of the legion of honor. In 1840 he became a *chef de bataillon;* in 1842 a lieut. col.; and in 1844 a colonel. During the rising of the desert tribes under Bou-Maza, col. Leroy de Saint Arnaud signalized himself at the head of the column placed under his orders, reduced the Dahra to subjection, and made Bou-Maza a prisoner. On the termination of the campaign he was promoted to be a commander of the legion of honor. In 1847 he was raised to the rank of a field-marshal; and in the early part of 1851 carried on a bloody but successful warfare with the Kabyles. He was now appointed a general of division. At this period Louis Napoleon was plotting the overthrow of the republic, and was on the look-out for resolute and unscrupulous accomplices; and accordingly, about the beginning of autumn, Leroy de Saint Arnaud appeared in Paris, and was immediately appointed to the command of the second division of the city forces. On Oct. 26 he became war minister, and took an active part in the *coup d'état* of Dec. 2, and the subsequent massacres at the barricades. On the breaking out of the Crimean war in 1854 he was intrusted with the command of the French forces, and co-operated with lord Raglan in the battle of the Alma, Sept. 20. He died nine days afterwards, the victim of an incurable disease.

LEROY D'ETIOLLES, JEAN JACQUES JOSEPH, 1798–1860; b. Paris; educated at the imperial lyceum, studied medicine and took his degree of M.D. in 1824. In 1822, before graduating, he presented to the academy of surgery a set of instruments of his invention for performing the operation of lithotrity (q.v.). The invention was claimed by Civiale and Amussat, and it was only after an examination by the academy that it was awarded to Leroy d'Etiolles. In 1831 the academy awarded him a prize of 6,000 francs for the lithotrity forceps. He was the author of other surgical inventions and of a *Histoire de la Lithotritie* (1839), and also translated into French *Cooper's Dictionary of Surgery.*

LER'WICK, a burgh of barony, chief t. of the Shetland islands, is situated on the main-land, on Bressay sound, in lat. 60° 9′ n., and long. 7° 8′ w., 110 m. n.e. of Kirkwall. Lerwick has no regular streets, the only thoroughfares between the houses being badly-kept and winding pathways. The harbor is commodious and safe. Pop. '81, 4,045. In 1875, 458 vessels, of 76,721 tons, entered and cleared the port. Fishing is the chief branch of industry. Valued rent, £6,087 in 1873–74. See SHETLAND.

LERY', JEAN DE, b. Geneva, Switzerland, 1534; the first Protestant who preached on the American continent. He was a Calvinistic minister, engaged in the expedition organized by Villegagnon under the protection of the great Protestant statesman Coligny, to plant a French Protestant colony in Brazil. The colony was planted on an island in the bay of Rio Janeiro in 1558, where Lery preached to the colonists until, by the treachery of Villegagnon, and the attacks of the Portuguese a few years afterwards, the colonists were forced to retire, mostly returning to France. Lery went to France, and in 1560 was living in Geneva; afterwards he was pastor of congregations in various cities of France. Many of his associates were victims of the massacre of St. Bartholomew.

LESAGE, ALAIN RENÉ, a French dramatist and novelist, b. May 8, 1668, at Sarzeau, now in the department of Morbihan, and studied under the Jesuits. In 1692 he came to Paris to pursue his philosophic and juristic studies, and to seek employment. His personal qualities attracted the favorable regard of a lady of rank, who offered him her hand; but in 1695 he married the daughter of a citizen of Paris. He renounced the practice of his profession as an advocate to devote himself to literature, and lived entirely by his literary labors, till the abbé de Lyonne gave him a small pension of 600

livres. Some of his dramatic pieces attained great popularity; and in 1709 he was offered 100,000 francs to suppress one of them, *Turcaret*, a bitter satire on the financiers of the time, but he refused the offer. His comic novels, which have never been excelled by anything of the same kind, won for him a still higher place in literature, particularly *Le Diable Boiteux*, *Les Aventures de Guzman d'Alfarache* (an abridged translation from the Spanish of Aleman), and *Gil Blas de Santillane* (2 vols. Par. 1715), which is universally regarded as his masterpiece. He died Nov. 17, 1747. A complete edition of his works was published in Paris in 1730. The novels above named have been translated into different languages, and *Gil Blas*, in particular, is extremely popular.

LES'BOS, the ancient name of an island in the Grecian archipelago, belonging to Turkey, called, during the middle ages, *Mitylene* (from its capital city), and hence, by the modern Greeks, *Mitylini*, or *Melino*, and by the Turks *Midilli*. It lies 40 m. s.e. of Lemnos (q.v.), near the coast of Asia Minor, from which it is distant only 10 m.; area, about 600 sq.m.; pop. about 40,000, of whom from 15,000 to 18,000 are Turks, the rest are Greeks. Lesbos is rather mountainous, but only one of the mountains attains an elevation of 3,000 feet. The climate is salubrious beyond that of any other island in the Ægean, and the soil is fertile. Anciently, it was famous for its wines—Horace celebrates the *innocentis pocula Lesbii*—but the modern produce is indifferent. Its figs, however, are excellent; but its principal exports are oil, timber, and gall-nuts. The chief town is Castro (q.v.). Lesbos was the birthplace of Terpander, Arion, Alcæus, Sappho, Pittacus, Theophrastus, and Cratippus.

LESCARBOT, Marc, 1570–1630; b. France. His work entitled *Discours sur la réunion des Églises d'Alexandria et de Russie à la sainte Église Catholique* appeared in 1599. In 1605 he took part in founding the colony of Acadia and that of Port Royal, and in 1609 published the *Histoire de la nouvelle France*, and a collection of poems, entitled *Les muses de la nouvelle France*. The history embraced a sketch of Cartier's voyages, the French settlement of Florida, and of Canadian colonization. It went through three editions; the last, with addition of other works, was published in 1618. The first edition was translated into English and German. Lescarbot was afterwards an advocate in the French parliament and the author of several unimportant works.

LES'GHIANS, a body of 300,000 people, inhabiting the mountains of western Daghestan in the Caucasus (Asiatic Russia), and speaking various languages. For many years they made a brave resistance to Russian aggression. Since 1859 they have been peaceable. Their religion, a modification of Islamism, is called Muradism, and was founded about 1830 by a native prophet.

LESION, a term in Scotch law to denote injury or prejudice sustained by a minor or by a person of weak capacity, sufficient to be a ground of action to reduce or set aside the deed which caused the lesion. See Infant.

LESLEY, John, 1527–96; b. Scotland; educated at King's college, Aberdeen, and in several continental universities, and in 1554 became professor of common law at Aberdeen. He was a partisan of Mary, queen of Scots, who made him bishop of Russ. He was also her diplomatic agent, and implicated in her project for marrying the duke of Norfolk as well as in the resulting rebellion of 1568. In 1573, in her service and for the promotion of Roman Catholic interests, he went to France, where he received ecclesiastical appointments, being made bishop of Coutances in 1593. Soon after this he was compelled to flee for refuge to Brussels, where he died. He wrote much in support of the cause of his royal mistress, and published in Rome, 1578, a *History of Scotland*, in 10 books, seven in Latin, and the last three in the Scottish dialect.

LESLEY, John Peter, b. in Phila., 1819; graduated at the university of Pennsylvania in 1838, and at Princeton theological seminary in 1844. He assisted in the first geological survey of Pennsylvania, 1839–41, and prepared the maps and illustrations for the final report in 1842. After completing this work he went to Europe, traveled on foot through France, and attended lectures at the university of Halle. In 1845 he undertook to establish the colportage system of the American tract society in the northern and middle counties of Pennsylvania. Two years later he became pastor of a Congregational church at Milton, Mass., but left the ministry in 1850 for the work of a professional geologist. Settling in Philadelphia, he was appointed secretary of the American iron association in 1855, secretary and librarian of the American philosophical association in 1858, professor of geology and mining engineering in the university of Pennsylvania in 1873, and state geologist of Pennsylvania in 1874. He examined the Bessemer iron-works of Europe in 1863; was appointed by the U. S. senate commissioner to the exposition of 1867, and spent the following season in Egypt. Among his works are a *Manual of Coal and its Topography*, and a *Guide to the Iron-Works of the United States*.

LESLIE: co., Kentucky. See page 898.

LESLIE, Charles, 1650–1722; b. Ireland; graduated at Trinity college, Dublin; removed to England in 1671 and began the study of law at the Temple, but soon abandoned this for divinity, and was admitted to orders in the church of England in 1680. Returning to Ireland he was appointed in 1687 chancellor of Connor. Living in Ireland at the time of the revolution he distinguished himself in disputations with the Roman Catholics in defense of Protestantism. Though a zealous Protestant he adhered to king James, refusing to acknowledge William as his rightful sovereign. Deprived of

prospect of preferment in the church, he left Ireland and came to England, where he gave himself to ecclesiastical and political controversy. In 1689 he had a controversy with bishop Burnet in defense of the doctrine of non-resistance. After the death of James II. he transferred his allegiance to his son, the pretender, was sent by some opulent Jacobite gentlemen in 1709 to Bar-le-Duc to convert him, and when the pretender removed to Italy he accompanied him. But being a Protestant he was dissatisfied with his inconsistent position, and in 1721 sought and obtained permission from George I. to return to his native land, and took up his abode at Glaslough, Ireland. His theological works excited much attention at the time. The most prominent are: *A View of the Times—their Principles and Practices; The Massacre of Glencoe; The Axe laid to the Root of Christianity; Querel a Temporum; A Short and Easy Method with the Deists.* He wrote against Quakers, Presbyterians, Deists, Jews, Socinians, and Papists. In his political controversies he was the advocate of high monarchical principles. Leslie is declared to have been a man of great learning and strict piety.

LESLIE, Charles Robert, r.a. This distinguished artist was b. in London in 1794. His parents were Americans resident there at the time of his birth; they went back to America in 1799, taking with them Charles Robert along with their other children. His father died in 1804 leaving the family in straitened circumstances. Young Leslie having from infancy been fond of drawing, wished to be a painter; but his mother not having the means of giving him a painter's education, he was bound apprentice to Messrs. Bradford & Inskeep, booksellers and publishers in Philadelphia. He had been three years at his apprenticeship, when he managed to execute a drawing of the popular actor, George Frederick Cook. The likeness having been pronounced excellent by a number of connoisseurs, a subscription was raised to enable the rising artist to study painting two years in Europe. He accordingly returned to England in 1811, and entered as a student in the royal academy. He seems at first to have attempted subjects in what is called the classical style, together with portraits; but by degrees he came to follow out the bent of his genius, and turn his attention to works in that style in which he distinguished himself—viz., genre-painting of the highest class. The first picture that brought him into notice was "Sir Roger de Coverley going to Church," exhibited in the royal academy in 1819. In 1821 his picture of "May-day in the Reign of Queen Elizabeth" secured his election as an associate of the academy; and "Sancho Panza and the Duchess," painted for lord Egremont, and exhibited in 1824, his best work (of which there is a repetition among the paintings of the British school bequeathed by Mr. Vernon to the national gallery), obtained for him the rank of academician. After this, till near the period of his death, there were few exhibitions of the royal academy to which Leslie did not contribute. Leslie's principal pictures are embodiments of scenes from the works of many of the most popular authors—Shakespeare, Cervantes, Lesage, Molière, Addison, Sterne, Fielding, and Smollett. His works have had a great influence on the English school; and though he almost always executed repetitions of his principal works—a practice that generally leads to decrease the value of pictures—his pictures bring immense prices. Great power of expression and a delicate perception of female beauty are the leading points in Leslie's pictures. In the early part of his career, his style may be objected to as deficient in color, and rather dry and hard; but the influence of Newton, his talented compatriot, led him to direct his attention to the works of the Venetian masters, and impart greater richness to his coloring. Later in life, the example of Constable inclined him to strive at producing *empasto*, or fullness of surface, in his pictures. Leslie accepted the appointment of professor of drawing at the military academy of West Point, N. Y.; but he gave up this occupation after a five months' residence, and returned to England. In 1848 he was elected professor of painting at the royal academy, but resigned in 1851. He died in London in May, 1859. His lectures were published in 1845 under the title of *A Handbook for Young Painters*—a very sound and most useful work on art. A most able life of his intimate friend and brother artist, Constable, whose great talent he was the first fully to appreciate, was published by him in 1845. The *Autobiographical Recollections of Leslie,* edited by Tom Taylor (1860), is a very interesting book.

LESLIE, Eliza, 1787–1858, b. Philadelphia. She spent seven years, 1793–1800, with her parents in Europe. Her first appearance as an author was in *Seventy-five Receipts for Pastry, Cakes, and Sweetmeats*, published in 1827. Her other publications are: *The American Girl's Book; Mrs. Washington Potts*—a tale; *Domestic Cookery Book; House-Book; Ladies' Receipt Book;* and a novel entitled *Amelia, or a Young Lady's Vicissitudes.*

LESLIE, Frank, 1821–80; b. England; was the son of Joseph Carter, a glove-manufacturer of Ipswich, and was named Henry Carter, a name which he changed on his removal to the United States, adopting that by which he was more generally known and under which he did business, by sanction of the legislature of New York. The name "Frank Leslie" had been employed by him as a pseudonym when, as a boy, he first practiced wood-engraving, and afterwards when he was attached to the engraving department of the *London Illustrated News.* Mr. Leslie emigrated to America in 1848, and was engaged by Gleason and Ballou, who were the first to found an illustrated newspaper in this country. Their paper was published in Boston, where Mr. Leslie remained until 1853, when he removed to New York to join the staff of Mr. P. T. Bar-

num, who, in company with Moses Y. Beach, at that time started the *Illustrated News* of that city. During the first years of his newspaper experience in America, Mr. Leslie introduced an important improvement in printing from blocks through the system of "overlaying," as it is termed, a process which effectually brings out the best qualities of an impression, and which is now generally adopted wherever illustrations are printed. In 1854 Mr. Leslie commenced the publication of the *Gazet'e of Fashion*, which proved to be the foundation of one of the largest publishing houses in the world; issuing at one time seventeen different periodical publications, all illustrated, many of which obtained world-wide celebrity. Mr. Leslie may be said to have created the modern idea of illustrated journalism, by first giving pictorial representations of important occurrences and events, with a just perception of the value of rapidity as well as accuracy of execution in their delineation. The list of his publications included *Frank Leslie's Illustrated Newspaper*, *The Chimney Corner*, *The Lady's Magazine*, *The Popular Monthly*, *The Sunday Magazine*, etc.

LESLIE, George Dunlop, b. London, 1835; son of Charles Robert Leslie; in his boyhood attended the Mercers' school; received artistic instruction from his father and at a school of art in Bloomsbury, and was admitted as a student to the royal academy in 1854. He began to exhibit pictures at the academy in 1857, was made an associate in 1868, and has since attained eminence in his art.

LESLIE, Henry David, b. London, 1822; studied music under the direction of prof. C. Lucas, and founded a choral society in 1856. In 1864 he became principal of the college of music, founded in the same year in London. His work has taken the form of symphonies, overtures, oratorios, cantatas, anthems, songs, duets, and pieces for the piano. He has also composed a romantic opera in three acts.

LESLIE, Sir John, a celebrated natural philosopher, was b. in Largo, Fife, April 16, 1766. While a boy, showing a strong bias for the exact sciences, he was sent to St. Andrews university in 1779. In 1785 he entered the Edinburgh divinity hall, but devoted most of his time to the sciences, particularly chemistry. In 1788 he left Edinburgh, and after being two years in America, as tutor to the sons of a Virginian planter, he returned to London in 1790. From that time till 1805 he was employed as tutor to the family of Mr. Wedgewood, at Etruria, Staffordshire, in traveling on the continent, in contributing to the press, and in making experimental researches: the fruits of his labors were a translation of Buffon's *Natural History of Birds* (1793), the invention of a differential thermometer, a hygrometer, and a photometer, and the publication of an *Experimental Inquiry into the Nature and Propagation of Heat* (1804), a most ingenious work, constituting an era in the history of that branch of physical science, and for which the royal society awarded him the Rumford medals. In Mar., 1805, he was, after a great deal of opposition from the Edinburgh clergy, elected professor of mathematics in the university of Edinburgh, and soon after commenced the publication of his *Course of Mathematics*. In 1810 Leslie invented the process of artificial congelation, performed the experiment in the following year before the royal society of London, and in 1813 published a full explanation of his views on the subject; subsequently he discovered a mode of freezing mercury. In 1819 he was transferred to the chair of natural philosophy, a position better adapted to his peculiar genius, and in 1823 published one volume of *Elements of Natural Philosophy*, never completed. In 1832 he was created a knight of the Guelphic order; and on Nov. 3 of the same year expired at Coates, a small estate which he had purchased near Largo. Besides the instruments above mentioned, he invented an æthrioscope, pyroscope, and atmometer, and contributed many articles to various periodicals on heat, light, meteorology, the theory of compression, electricity, atmospheric pressure, etc. His last important work was his discourse on the *Progress of Mathematical and Physical Science during the Eighteenth Century*, which constitutes the fifth dissertation in the first volume of the *Encyclopædia Britannica*, 7th and 8th editions.

LESLIE, Thomas Edward Cliffe. See page 898

LESLIE, LESLY, or **LESLEY,** The Family of. The first trace of this Scottish historical house is found between the years 1171 and 1199, when David, earl of Huntington and the Garioch, brother of king William the lion, granted a charter to Malcolm, the son of Bartholf, of the land of Lesslyn (now written Leslie), a wild pastoral parish in Aberdeenshire. Bartholf's descendants, taking their surname from their lands of Leslie, acquired large domains before the end of the 13th c., by marriages with the heiress of Rothes on the Spey, and with one of the co-heiresses of Abernethy on the Tay. Sir Andrew of Leslie appears as one of the magnates of Scotland in 1320, and from this time the family figures in the history of the country.

Earls and Duke of Rothes.—It became ennobled in 1457, when George of Leslie, of Rothes, and of Leslie upon Leven (the family had transferred the name of its first possession in the Garioch to the lands of Fethkil, in Fife) was made earl of Rothes and lord Leslie. The third earl was the father of Norman Leslie, master of Rothes, the chief actor in the murder of cardinal Beaton. The fifth earl, although a man of dissolute life, distinguished himself as one of the ablest of the covenanting leaders. His son, scarcely less able, though almost uneducated, became lord chancellor of Scotland in 1667, and in 1680 was created duke of Rothes, marquis of Ballinbreich, earl of Leslie, etc. These honors, being limited to the heirs-male of his body, became extinct upon

his death without male issue in 1681. The earldom of Rothes went to his eldest daughter, whose descendant, the present countess of Rothes, is the 16th who has held the dignity.

Earls of Leven.—Before the family forsook its first seat in Aberdeenshire, it had thrown off branches, some of which still flourish there. The chief, that of Balquhain, has given birth by itself or by its offshoots to several men of mark, such as the learned John Leslie, bishop of Ross (born in 1527, died in 1569), the devoted champion of Mary, queen of Scots; sir Alexander Leslie of Auchintoul, a gen. in the Muscovite service, who died governor of Smolensko in 1663; and Charles Leslie, chancellor of the diocese of Connor, author of a *Short Method with the Deists*, who died in 1732. A still more distinguished man was Alexander Leslie, a soldier of fortune, who, bursting the trammels of illegitimate birth and a scanty education (he could write his name, but nothing more), rose to be a field-marshal of Sweden under the great Gustavus Adolphus. He was recalled to Scotland in 1639, to take the command of the covenanting army; and in 1641 was made earl of Leven and lord Balgony. He died in 1661, leaving two grandchildren, the younger of whom married the earl of Melville, and left a son, who became third earl of Leven and second earl of Melville. His descendant is now ninth earl of Leven and eighth earl of Melville.

Lords Lindores.—The second son of the fifth earl of Rothes was created lord Lindores in 1600. The title has been dormant since the death of the seventh lord in 1775.

Lords Newark.—David Leslie, fifth son of the first lord Lindores, served with distinction under Gustavus Adolphus of Sweden, and returning to Scotland, on the outbreak of the great civil war, was one of the leaders of the parliamentary army at Marston moor, and surprised and routed Montrose at Philiphaugh. He was defeated by Cromwell at Dunbar in 1650, and after ten years' imprisonment in the Tower, was set at liberty at the restoration. He was made lord Newark in 1661, and died in 1682. The title has been dormant since the death of his great-grandson, the fourth lord, in 1791.

Counts Leslie.—Walter Leslie, a younger son of the house of Balquhain, distinguished himself in the Austrian army, and in 1637 was created a count of the empire, as a reward for his services in the murder of Wallenstein. He died without issue in 1667, when he was succeeded by his nephew, James, a field-marshal in the Austrian service, who died in 1694. The title became extinct in 1844.

The history of the Leslies was written by father William Aloysius Leslie, a younger brother of the second count, in a large and sumptuous folio published at Gratz in 1692, with the title of *Laurus Lesliana Explicata*. The *Pedigree of the Family of Leslie of Balquhain* was printed at Bakewell in 1861, for private circulation. Some histories of the family still remain in MS. One of them boasts that "at one time three Leslies were generals of armies in three kingdoms—Walter, count Leslie, in Germany; Alexander Leslie, earl of Leven, in Scotland; and sir Alexander Leslie of Auchintoul, in Muscovy." See also *Historical Records of the Family of Leslie*, by col. Leslie of Balquhain (Edinburgh, 1869).

LESSEE—LESSOR. See Landlord and Tenant.

LESSEPS, Ferdinand, Viscomte de; b Versailles, France, 1805. His father was consul or commercial agent of the French government, in many different countries. His mother was sister of the grandmother of the empress Eugénie. De Lesseps was educated in Paris; at the age of 20 was an *attaché* of the French consul-general at Lisbon; at 22 was employed in the commercial department of the minister of foreign affairs, and soon after made consul at Tunis; at 26 he went to Egypt as vice-consul at Cairo, and had the management of the business of the consulate-general at Alexandria. His noble conduct during the plague in Egypt which, in 1834–5, destroyed one-third of the population, procured him in 1836 the cross of *chevalier de la legion d'honneur*. He was again made manager of the Egyptian consulate and diplomatic agent of France, and gained influence with Mehemet Ali the great viceroy of Egypt. In 1838, '39, and '42, he was appointed successively to the positions of consul at Rotterdam, Malaga, and Barcelona. When the latter city was bombarded, his devotion to the safety and comfort of the foreign residents procured him their gratitude, and thanks and decorations from several governments. He remained consul-general at Barcelona until the revolution of 1848. Then, recalled to Paris, he was appointed by Lamartine minister to Madrid. In Feb., 1849, this place was given to Napoleon Joseph Bonaparte, and Lesseps returned to Paris. He was at once sent as minister to Switzerland; but on the breaking out of war at Rome between the French troops under Oudinot, and the Italians under Garibaldi, he was charged by M. Drouyn de Lhuys with the delicate mission of restraining the French general from a too warlike attitude towards the Italians, while managing to retain the footing of the French army in Rome. During that discreditable meddling of the French with the affairs of the people of Rome, M. de Lesseps frankly informed his government of the mischievous consequences that might result from its enforced occupation of the city, of the unpopularity of the pontifical power, and of the earnestness of the resistance of the Roman people; avowing with courage his belief in the noble character and aims of Mazzini. The government in Paris, already become reactionary by the combination between Louis Napoleon and the clergy, recalled Lesseps, disavowed his acts, and let loose the French army against the Romans. He published in 1849 a little book entitled

Ma Mission à Rome, in which he defended his acts and avowed sympathy with the Italians in their struggle under the leadership of Garibaldi and Mazzini. Towards Mazzini, then defeated, banished, and proscribed by the French power in Rome, he had the courage to express the warmest admiration of his virtues and talents. The French minister charged the council of state to examine M. de Lesseps's acts in Rome, but in the absence of specific charges, the latter refused to make any explanation to them, but published his defense in two books entitled, *Mémoire au Conseil d'Etat,* and *Une réponse à l'Examen de ses Actes.*

Out of government employ, M. de Lesseps went to Egypt in 1854, and securing the concurrence of the viceroy Mohammed-Said-Pacha, projected the construction of the great interoceanic canal of Suez. In 1856 he published his plans and projects under the title of *Percement de l'isthme de Suez, exposé et document officiels.* Obstacles multiplied as attention was attracted to the project. The Turkish government, at the instigation of the English, refused its authorization. The engineer authorized by the state condemned the project as chimerical. In the face of such obstructions, and with the need of enormous sums of money to construct the canal, M. de Lesseps devoted himself to the work with such tact and indomitable energy, by social persuasion, personal interviews with statesmen, capitalists, and journalists, by essays and speeches, that he not only kept the public curiosity aroused, but attracted its sympathy and confidence; won the government to his support, and secured $40,000,000 in subscription to the capital stock required for the construction. Work was actually commenced in 1859. On Nov. 20, 1869, the completion was celebrated with imposing ceremonies.

In Sept., 1870, on the fall of Louis Napoleon, he was in Paris, and fearing for the safety of his relative, the empress Eugénie, he placed himself at her side, and saw her safely beyond the city. In addition to numerous *brochures* on the subject of the Suez canal M. de Lesseps is author of a *Memoire à l'Academie des Sciences sur le Nil blanc et le Soudan;* also *Principaux faits de l'Histoire d'Abbysinie.*

The connection of M. de Lesseps with the project of an interoceanic canal, across the isthmus of Pañama is recent. An international society, for cutting an interoceanic canal through that isthmus, was organized in Paris in 1876; in which lieut. Wyse, of the French navy, and gen. Turr were the leading spirits. That society procured from the government of the United States of Colombia a concession or right to build a canal on its territory. M. de Lesseps secured to himself the privileges and assumed the conditions of that grant. Although the U. S. government (of North America) had spent several hundred thousand dollars in making thorough surveys of several canal routes, and had published elaborate illustrated reports of its engineers, no national, international, or private organization for the construction of the canal had been effected before M. de Lesseps took steps to convene the international congress of Paris for that purpose in May, 1879. De Lesseps was its president. That congress, after examining all the projects, decided in favor of the plan of a sea-level thorough-cut. De Lesseps was made president of a preliminary organization to make further surveys on the route selected. On Dec. 6, 1879, he went with his family to the isthmus. In the Jan. number of the *North American Review* of 1880, De Lesseps contributed what may be considered a talk to the American people on the canal question. In the Feb. number following, rear-admiral Ammen, who has been engaged many years in studying the canal routes, and who was one of the U. S. delegates to the Paris congress, reviewed M. de Lesseps's statements in a vein of polished satire indicating some irritation at the assumption of the latter. On Feb. 24, 1880, M. de Lesseps came from Aspinwall to New York with his family, with his project matured, and submitted it to American capitalists in a circular of information concerning the canal grant, cost, etc.; and visited Washington, Chicago, and San Francisco, in furtherance of his scheme. Having been the organizer, he is now the president of a company for the construction of a ship-canal across the isthmus of Panama.

The appearance and personal magnetism of M. de Lesseps are remarkable. A correspondent of the *N. Y. Tribune,* writing in June, 1880, gives the following description of him as seen at a dinner party given by Cyrus W. Field in London: "The shrewdest and most powerful of all the faces belonged to M. de Lesseps. I saw him at the opening of the Suez canal in 1869." Now, in his 75th year, "he is just as erect in figure, and alert in manner; his eyes are as bright and full, and his conversation has all the old power and vivacity." The *N. Y. Times* correspondent who met him on his arrival from Aspinwall, thus describes him: "In conversation, Lesseps is frank, eloquent, and kind, to a remarkable degree; and his age and white hairs are forgotten in the presence of his demonstrative gestures and his vigorous diction."

M. de Lesseps married a second wife soon after the completion of the Suez canal, a young creole lady, by whom he has a family of young children. He has also children by a former wife. See Interoceanic Ship Canal.

LESSING, Gotthold Ephraim, an illustrious German author and literary reformer, was b. Jan. 22, 1729, at Kamenz, in Saxon Upper Lusatia, where his father was a clergyman of the highest orthodox Lutheran school. After spending five years at a school in Meissen, where he worked very hard, he proceeded to the university of Leipsic in 1746, with the intention of studying theology. But he soon began to occupy himself with

other matters, made the acquaintance of actors, contracted a great fondness for dramatic entertainments, and set about the composition of dramatic pieces and Anacreontic poems. This sort of life pained his severe relatives, who pronounced it "sinful," and for a short time Lessing went home; but it was his destiny to revive the national character of German literature; and after one or two literary ventures at Leipsic of a trifling character, he proceeded to Berlin in 1750, where he commenced to publish, in conjunction with his friend Mylius, a quarterly, entitled *Beiträge zur Historie und Aufnahme des Theaters*, which only went the length of four numbers. About this time also appeared his collection of little poems, entitled *Kleinigkeiten*. After a brief residence at Wittenberg, in compliance, once more, with the wishes of his parents, he returned to Berlin in 1753, and in 1755 produced his *Miss Sara Sampson*, the first specimen of *bourgeoisie* tragedy in Germany, which, in spite of some hostile criticism, became very popular. Lessing now formed valuable literary friendships with Gleim, Ramler, Nicolai, Moses Mendelssohn, and others. In company with the last two, he started (1757) the *Bibliothek der Schönen Wissenschaften*, the best literary journal of its time, and still valuable for its clear natural criticism; he also wrote his *Fabeln*, his *Literaturbriefe*, and a variety of miscellaneous articles on literature and æsthetics. Between 1760 and 1765 he lived at Breslau as secretary to gen. Tauenzien, governor of Silesia. The year after his return to Berlin, he published his masterpiece, the *Laocoon*, perhaps the finest and most classical treatise on æsthetic criticism in the German or any other language. In 1767 appeared *Minna von Barnhelm*, a national drama, hardly less celebrated than the *Laocoon;* and in 1768, his *Dramaturgie*, a work which exercised a powerful influence on the controversy between the French and the English styles of dramatic art—i.e., between the artificial and the natural, between the conventional and the true, between shallow and pompous rhetoric, and genuine human emotion. In 1770 Lessing was appointed keeper of the Wolfenbüttel library. Two years later appeared his *Emilia Galotti;* and between 1774 and 1778, the far-famed *Wolfenbüttelsche Fragmente eines Ungenannten*. These Wolfenbüttel fragments are now known to have been the composition of Reimarus (q.v.), but the odium of their authorship fell at the time on Lessing, and he was involved in much bitter controversy. In 1779 he published his *Nathan der Weise*, a dramatic exposition of his religious opinions (his friend Moses Mendelssohn is said to have been the original of Nathan); and in 1780 his *Erziehung des Menschengeschlechts*, a work which is the germ of Herder's and all later works on the Education of the Human Race. He died Feb. 15, 1781. Lessing is one of the greatest names in German literature. If his works seem hardly equal to his fame, it is because he sacrificed his own genius, as it were, for the sake of others. When he appeared, the literature of his country was corrupted and enslaved by French influences. The aim of Lessing was to reinvigorate and emancipate the national thought and taste; and the splendid outburst of national genius that followed was in a large measure the result of his labors. See Stahr's *Lessing* (1859); Sime's *Lessing: his Life and Works* (1877); and Miss Zimmern's *Lessing* (1878).

LESSING, Karl Friedrich, b. Wartenberg, Silesia, 1808; attended the school of architecture at Berlin; afterwards studied for several years under Schadow at Düsseldorf, and in 1858 was made director of the gallery of paintings at Carlsruhe. Many of his pictures have excited admiration by their strength and richness. Among the best known of his historical paintings are "The Hussites;" "Huss before the Council;" and "The Martyrdom of Huss." He d. 1880.

LESSON (Lat. *lectio*, Fr. *leçon*, a reading, called by the Greeks *anagnosma*), in liturgical literature, means a portion of the church service appointed to be read, chiefly with a view to instruction and exhortation, not couched in the form of a prayer, nor, even when found in the mass or the communion service, directly bearing upon the consecration of the eucharistic elements. The lessons of the eucharistic service in the Roman Catholic church are always taken from the books of the Old or New Testament (including the apocrypha); but in some of the other services of the Roman, Greek, and oriental churches, portions of the writings of the fathers, lives of saints, and occasionally short narratives from church history, are employed. The very earliest notices which we have of the liturgical services of the first Christians allude to the usage of reading portions of sacred Scripture publicly in the church. The practice existed among the Jews in their synagogues (Luke iv. 16), and St. Paul frequently alludes to its use also in Christian assemblies, in his epistles to the infant churches of Colossæ, Laodicea, and Thessalonica. It is even more circumstantially referred to by Tertullian (*Apolog.* c. 39; and again, *Prescript.* c. 36), and by Justin the martyr in his *Apology* (1 *Apol.* n. 67). Our information regarding the liturgy of this early period is too scanty to enable us to say what order was followed, and what principles were adopted in selecting the portions of Scripture for these solemn readings; but from the fathers of the 4th and later centuries, it is plain that the selection was in some degree regulated by the seasons; and, at all events, that it was not left to the determination of each individual minister or even church. It would seem that in general the extracts were so disposed as to present the several books of Scripture in succession; but at particular times, portions were chosen which seemed appropriate to these times. Thus, the lessons at and after Easter were the gospel narratives of the resurrection; between Easter and Pentecost, the Acts of the Apostles; in Lent, they were taken from Genesis and the other books of the Pentateuch;

in Passion-tide, from the book of Job. In the modern Greek church, so strictly is this order observed, that the Sundays of certain periods are known by the names of the Evangelists read at that time—as the first, second, or third "Matthew-Sunday," "Mark-Sunday," etc. In the Roman missal, the distribution of the gospel lessons is regulated more by the subjects than by the authors; and in addition to the distribution according to time, there is another which is regulated by the nature of the festivals, or the special characteristics of the saints to whose offices they are appropriated. The time and the origin of this distribution are uncertain; but it is commonly ascribed, at least in part, to St. Jerome, and distinct traces of it are found in several writers of the 5th and following centuries.

In the service-books of the Roman Catholic church, the lessons of the missal are always from holy Scripture; and they are, unless in a few exceptional cases, two in number, the first called (as being ordinarily taken from one of the epistles of St. Paul, or the canonical epistles) the "Epistle"; the other, the "Gospel." A second gospel is commonly read, which is taken from the 1st chapter of St. John. The epistle is taken either from the canonical epistles of the New Testament, or, less frequently, from one of the books of the Old Testament, including the apocrypha (generally from Wisdom, Ecclesiastes, Ecclesiasticus, or Proverbs), but occasionally from the books of the Pentateuch and other historical books. On a few exceptional occasions, chiefly in advent and lent, or at the quarter tenses (as the ember-days are named in the language of the Roman church calendar), more than one epistle occurs. The distinction of the "Epistle Lesson" and the "Gospel Lesson" is at least as ancient as the time of St. Augustine (see Aug. Serm. 176). In the solemn or high mass, each of these lessons is chanted or recited by a separate minister—the epistle by the sub-deacon, the gospel by the deacon; the former being chanted at the right side, the latter at the left side of the altar. In the low mass, both are read by the priest; but the same difference of position in reciting them is observed by the single priest. Anciently, one or both were chanted from an elevated platform or pulpit called *ambo*, and in Gothic churches, from a gallery attached to the rood screen. The recitation from the ambo is retained in the Ambrosian rite as still practiced in the Milan cathedral. In the several eastern rites, the lessons are more numerous than those corresponding to the Roman epistle, being chosen from the Old Testament, from the Acts of the Apostles, from St. Paul's epistles, and from the Catholic epistles. The gospel-lessons are, of course, taken from the several Evangelists. In the Greek church, the former is read by the *anagnostes* or *lector;* the latter by the deacon. In the other eastern churches, both are read by the deacon, with the exception of the Syrian church, in which the gospel is read, not by the deacon, but by the priest.

The "lessons" of the Roman breviary are more varied. They occur only in matins, with the exception of a "short lesson," which is found in Prime and also in Compline. The lessons of matins are sometimes three, sometimes nine in number, according as the matins consist of one or of three "nocturns." See BREVIARY. When there are three nocturns, the lessons of the first are commonly from the Holy Scriptures, the books of which are so distributed throughout the seasons, that portions of every book shall be read during the year The lessons of the second nocturn consist either of a narrative of the life of a saint, or of the circumstances of a festival, or of a sermon or other discourse from a holy father; and those of the third are generally from a homily of one of the fathers upon the gospel appropriate to the festival. The "short lessons" of Prime and Compline consist of sentences from Holy Scripture.

In the public and solemn offices, the lessons are chanted, the tones being reputed of ancient origin; and the chanting of the gospel especially being accompanied with special marks of reverence for the word of God, as the incensation of the book of the gospel, signing it with the sign of the cross, and the bearing of lights during the singing—a practice which was already ancient as early as the days of St. Jerome's controversy with Vigilantus. When the pope officiates solemnly, the epistle and gospel are chanted in Greek as well as in Latin, in order to denote the union of both the rites in one Catholic church; and at the coronation of at least one of the popes (Alexander V.), the gospel was sung in Latin, Greek, and Hebrew.

In the church of England the term is used only of the portions of Scripture appointed to be read at morning and evening prayer, and at the service for the burial of the dead. The enlargement of this part of the service formed a great feature of the reformed liturgy, and was a return to the more ancient use, entire chapters being substituted for short selected passages. Four lessons are appointed for every day, two at morning and two at evening prayer. The first lesson, at each service, is taken from the Old Testament—which is read through, in course, once a year (the order of the books being only departed from in the reservation of Isaiah for the season of advent)—and from certain books of the Apocrypha, viz., Tobit, Judith, Wisdom, Ecclesiasticus, Baruch, and the histories of Susanna and of Bel and the Dragon, which are read for the reasons quoted from St. Jerome, in the sixth article of religion, viz., "for example of life and instruction of manners," but not "to establish any doctrine." The second lessons are from the New Testament, which is read through three times in the year—that in the morning from the gospels and acts of the apostles, that in the evening from the epistles. "Proper," i.e., special first lessons, are appointed for all Sundays and holidays; those for Sundays were fixed at the restoration of the reformed liturgy under Elizabeth, and

consist of chapters selected from the various books, so arranged as to follow the seasons of the church—e.g., those during Advent are taken from Isaiah, those from Septuagesima to Easter from Genesis and Exodus, so that the account of the institution of the Passover and the going out from Egypt falls on Easter day. The general purpose of the Sunday proper lessons seems to be that of representing the divine dealings with the church of the Old Testament. The first lessons, on the minor holy-days, are taken, in course, from the didactic books of the Old Testament and Apocrypha. Except on the chief festivals, there are no proper *second* lessons, the New Testament being ordinarily read through, in course, on Sundays and week-days, so causing the fixed first lesson to combine with the varying second lesson, in a manner which sometimes throws much light on both. Parts of Leviticus and Joshua, and the two books of Chronicles, are omitted; and the Apocalypse is resorted to only to supply the second lessons for the feast of St. John the Evangelist, and at evening service on All Saints' day. The lessons for each service are ascertained by reference to a calendar, prefixed to the book of common prayer—the proper lessons, which always supersede the others, being given in separate tables. When a lesson is directed to be read *to* any verse, it is always *exclusive* of that verse. The lessons are allowed to be read by persons not in holy orders, but are directed to be so read "as may best be heard of all present." Each lesson is followed by a canticle or psalm, after the manner of the old responsory, and on the principle that every revelation of the divine character and dealings affords fresh material for His praise.

LESTER, Charles Edwards, b. Griswold, Conn., 1815; a descendant of Jonathan Edwards. He resided in early life at the West and South, was admitted to the bar in Mississippi, and afterwards ordained as a Presbyterian minister. In 1840, being in Massachusetts, he attended anti-slavery meetings and made several addresses in favor of the cause, and by his own request was elected a delegate by the Massachusetts anti-slavery society to the London anti-slavery conference of that year. He remained in England after the conference closed, and, having changed his views, published *The Glory and Shame of England*—a work in which the anti-slavery professions of that country were treated as hypocritical. President Tyler, in 1842, appointed him as U. S. consul to Genoa, where he remained until 1847. Since that time he has been engaged chiefly in literary labors, having published *Condition and Fate of England; Life of Vespucius; The Napoleon Dynasty; Life of Charles Sumner;* and *Our First Hundred Years.*

LESTOCQ, Jean Herman, 1692–1767; b. at Celle, Hanover. He chose the profession of a surgeon, and, after acquiring his education, went to Russia and received an appointment in the service of Peter the great, but on account of his dissolute habits was banished to Kazan in 1718. In 1725 Catherine I. recalled him, and appointed him surgeon to the princess Elizabeth. Such was the influence which he acquired over the princess, that he succeeded in persuading her to engage in the revolution of 1741, by which she became empress of Russia. The empress gave him a pension of 7,000 roubles annually, and the king of Poland made him a count. In 1748 his loyalty was suspected by the empress, and he was arrested, put to the torture, and banished to Ooglitch. He was recalled by Peter III. in 1761, and Catherine II. gave him an estate in Livonia, where he died.

L'ESTRANGE, Sir Roger, 1616–1704; b. Hunstanton, Norfolk, England. After receiving a liberal education he accompanied Charles I. in his expedition against the Scots in 1639. A zealous royalist during the civil war, he was appointed by the king in 1644 governor of Lynn, and attempted to take it from the parliamentary forces, but was betrayed by two of his accomplices, tried, condemned to death as a traitor, and sent to Newgate. Having friends in parliament he was reprieved, and after four years' confinement escaped, attempted to excite an insurrection in Kent, but failing, fled to the continent. After the passage of the act of indemnity in 1652, he returned in 1653, made personal application to Cromwell, and was allowed to remain undisturbed. After the restoration he was appointed by Charles II. censor or licenser of the press. In the *Public Intelligencer*, a newspaper which he started in 1663, he slavishly supported the crown. The *Observator*, begun after the popish plot in 1679, was the organ of the tory party, and sought to defend the king from the charge of favoring popery. On the accession of James II. he was knighted for "his unshaken loyalty to the crown," and became in 1685 a member of parliament. At the restoration in 1688 he was deprived of his office of censor, and soon after became an imbecile. His political pamphlets, which were numerous, were written in a coarse, violent, abusive style. He wrote translations of *Josephus; Cicero's Offices; Seneca's Morals; Erasmus's Colloquies; Æsop's Fables; Quevedo's Visions; Bona's Guide to Eternity; Five Love-letters from a Nun to a Cavalier.*

LESTRID'INÆ, a name of a sub-family of *laridæ*, the great family of gulls, and of course allied to the sub-family *larinæ* (q.v.). The group embraces the jägers or gull hunters, so called because they pursue the smaller gulls, and rob them of the food which they may have in their beaks or which they have swallowed, making them disgorge. They have a strong beak, the upper mandible of which hooks over the lower. The typical species are principally inhabitants of the polar regions, but some are distributed in various seas. See Gull.

LE SUEUR, a co. in s.e. Minnesota, having for its western boundary the Minnesota river, drained by Cannon river, rising in its southern portion, and flowing e., emptying into the Mississippi river; 475 sq.m.; pop. '80, 16,104—11,314 of American birth, 35 colored. Its surface is diversified by extensive forests of sugar maple, oak, elm, and ash, and a large number of picturesque lakes. Its soil, having a limestone formation, is very fertile, and adapted to the raising of tobacco, wool, sweet potatoes, wine, dairy products, maple sugar, sorghum, and hops. Lumber is a staple commodity, and it has 5 carriage factories, 6 flour-mills, and 14 saw-mills. It had in '80, 62 manufacturing establishments, employing 133 hands, with a capital of $167,100, and a product of $491,617. The Winona and St. Peter railroad forms its s.w. boundary, following the course of the Minnesota river, and its eastern section is crossed by the St. Paul and Sioux City railroad. Seat of justice, Le Sueur.

LESUEUR, Eustache, 1617–55; b. France; a painter early patronized by cardinal Richelieu, but was long obliged to earn a scanty living by designing for books, etc. His painting of St. Paul healing the sick by the imposition of hands gave him celebrity; and a series of 19 pictures executed for the drawing-room of the Hôtel Lambert, and 22 pictures illustrating the life and death of St. Bruno, are among the works which afterwards established his fame.

LESUEUR, Jean Baptiste Cicérone, 1794–1879; b. France; an architect who received the Roman prize at the *académie des beaux arts* in 1819, and then spent several years in Italy. In 1828–30 he designed the church of Vincennes, and was associated with Godde in the admirable extensions of the *Hôtel de Ville* of Paris. In 1852 he became a professor in the school of fine arts, and in 1857 completed the conservatory of music in Geneva. He is author of the *Chronologie des Rois d'Égypte,* which was published by order of the government in 1848–50.

LE SUEUR, Jean François, 1760–1837; b. France; a musical composer; educated at Amiens. At the age of 26 he was made chapel-master of Notre Dame in Paris; afterwards one of the examiners of the conservatory of music; in 1804 imperial chapel-master, and in 1814 royal director of music. He is author of the following operas: *La Caverne; Paul et Virginie; Télémaque; Les bardes; La mort d'Adam;* also of a large number of oratorios and sacred compositions.

LETCHER, a co. in s.e. Kentucky, surrounded by ranges of the Cumberland mountains; 360 sq.m.; pop. '80, 6,601—6,600 of American birth, 142 colored. It is drained by the head waters of the Kentucky river. The s. and s.e. section is occupied by a part of the Cumberland mountain range that separates it from the state of Virginia. It has large tracts of woodland, and bituminous coal is present in some sections. Some portions of its valleys are fertile, being adapted to the raising of live stock and every variety of grain. Seat of justice, Whitesburg.

LETHAL WEAPON, in Scotch criminal law, means a deadly weapon by which death was caused, as a sword, knife, pistol.

LE'THÉ, in Grecian mythology, the stream of forgetfulness in the lower world, from which souls drank before passing into the elysian fields, that they might lose all recollection of earthly sorrows.

LETO. See Latona.

LETRONNE, Antoine Jean, 1787–1848; b. Paris; distinguished in early youth alike for his spirit in supporting his mother and brother and for precocity in classic learning. He traveled in his own country and in Switzerland, in 1810–12; then edited the work of Dicuil on the measurement of the earth. The government selected him to complete the translation of Strabo begun by Laporte-Dutheil. In 1819 he became inspector-general of the university; in 1831 professor of history in the college of France; in 1832 keeper of antiquities in the royal library; in 1838 administrator of the college of France, and professor of archæology; and in 1840 keeper of the archives of the kingdom. His great work, left unfinished at his death, is the *Recueil des Inscriptions Grecque et Latines de l'Egypt,* two 4to volumes of which were published in Paris, 1842–48.

LETTER MISSIVE, in the usage of Congregational churches, the official letter by which churches are invited to send their delegates to a council. The form is not important; but in substance, the letter must credibly purport to be issued by the church (or in some cases the person or persons) desiring the council; must be addressed and a copy sent to each invited church; must appoint the time and place of convening; must show the names of all churches similarly summoned to compose the council; and must plainly designate the case or cases which are to be submitted for advice or action. Churches may decline to respond to the invitation conveyed by a letter missive; but when it has been issued and acted on by the invited churches in the appointment of their delegates, it becomes the charter of the council; and as such it cannot be changed either by the church which sends it or by the council convened pursuant to it, in regard to either the object or the membership which the latter has designated for the council. Thus the membership indicated by the letter missive cannot be enlarged; and the council, though it may refuse to act under the letter, cannot act at all outside of its limitations. In strict theory letters missive should summon churches only, but in practice they are often issued to individuals also. See Council.

LETTER OF MARQUE (because the sovereign allowed a market or mart—i.e., authorized the disposal of the property taken), the commission authorizing a privateer to make war upon, or seize the property of, another nation. It must be granted by the lords commissioners of the admiralty, or by the vice-admiral of a distant province. Vessels sailing under such commissions are commonly spoken of as *letters of marque.* Making war without letters of marque by a private vessel is piracy. Letters of marque were abolished among European nations at the treaty of Paris in 1856.

LETTERS, a legal term used in the United Kingdom in combination with other words. *Letters of administration* in England and Ireland mean the legal document granted by the probate court to a person who is appointed administrator to a deceased person who has died intestate. See ADMINISTRATION, WILL, INTESTACY. *Letter of attorney,* or power of attorney, in English law, is a writing or deed authorizing an agent (whether he is a certificated attorney or not) to do any lawful act in the stead of the party executing it. *Letters conform,* in Scotch law, mean a writ issued by the supreme court enforcing a decree of an inferior court. *Letter of credit* is an authority from one banker to another to pay money to a third person. *Letters of exculpation,* in Scotch criminal law, are a warrant obtained by a prisoner to summon witnesses on his behalf at his trial. *Letter of guarantee,* in Scotch law, means a writing guaranteeing a debt or engagement of another. *Letter of license* is a deed or instrument executed by the creditors of a trader who is insolvent, giving him time to pay, and, in the meantime, to carry on his business under surveillance. *Letters missive,* in England, is an order from the lord chancellor to a peer requesting the latter to enter an appearance to a bill filed in chancery against such peer; in Scotland, the word means any written agreement or memorandum relative to some bargain as to mercantile matters, or as to the sale of land or houses or the letting of land. *Letters patent* mean a writing of the queen, sealed with the great seal of Great Britain, authorizing or appointing the party to whom it is addressed to do some act, or execute some office, as creating a peer, a judge, a queen's counsel; also granting a patent right to a person who is the first inventor of some new contrivance. See PATENT. *Letters of request,* in English ecclesiastical law, mean a writ which commences a suit in the court of arches against a clergyman, instead of proceeding, in the first instance, in the consistory court. *Letters of safe conduct* mean a writ, under the great seal, to the subject of a state at war with this country, authorizing and protecting such subject while dealing or traveling in this country, so that neither he nor his goods may be seized, as they otherwise might be.

LETTERS (*ante*). *Letters rogatory* are an instrument sent by a judge in the name and by the authority of his court to a court in another jurisdiction, requesting the latter to have examined a witness within its jurisdiction, in regard to a cause pending in the former court, upon written interrogatories filed in said cause. The instrument is addressed to any foreign court with civil jurisdiction, relates the pendency of the cause in the home court, and the names of the witnesses residing in the foreign jurisdiction, and requests the foreign court to cause such witnesses to be examined, and their depositions to be taken and returned with the letters to the home court. Letters rogatory are not in frequent use at present, though occasionally resorted to in admiralty courts. They are necessary where a foreign government refuses to execute commissions issued to private persons, and oaths can be administered and depositions taken only by judicial officers. *Letters testamentary* are an instrument issued by a judge who has jurisdiction of probate matters, declaring that a certain will has been admitted to probate, and giving the executor power to administer the estate. Such an instrument granted to the administrator of a person dying intestate is called *letters of administration.* The original will is usually deposited in the registry of probate, and a copy, under seal, with the letters annexed, is returned to the executor or administrator. Such letters do not extend over assets of the decedent situated in another state. For such assets ancillary administrators must be appointed, to whom additional letters must issue. See EXECUTOR; PROBATE COURT; *ante.*

LETTERS, PROPORTIONATE USE OF. The following tables represent the conclusions based on the experience of printers, with regard to the relative frequency of use of the letters of the alphabet in English composition. The first table exhibits the general use; the second, that of initials:

E	1000	H	540	F	236	K	88
T	770	R	528	W	190	J	55
A	728	D	392	Y	184	Q	50
I	704	L	360	P	168	X	46
S	680	U	296	G	168	Z	22
O	672	C	280	V	158		
N	670	M	272	B	120		

The proportion of their use as initial letters is as follows:

S	1194	M	439	W	272	Q	58
C	937	F	388	G	266	K	47
P	804	I	377	U	228	Y	23
A	574	E	340	O	206	Z	18
T	571	H	308	V	172	X	4
D	505	L	298	N	153		
B	463	R	291	J	69		

LETTERS AND **ARTICULATE SOUNDS.** Letters are conventional marks or visible signs of the elemental sounds of spoken language. The earliest symbols of sounds represented syllables rather than simple sounds (see ALPHABET, HIEROGLYPHICS, CHINESE LANGUAGE). It was only gradually that syllables were reduced to their ultimate elements, and all alphabets yet bear marks of their syllabary origin (see letter K), displaying various imperfections both of excess and defect.

Articulate sounds are divided into vowels and consonants; and the latter are subdivided into voiceless and vocal elements (otherwise called "sharps" and "flats"), obstructive and continuous elements (otherwise called "mutes" and "semi-vowels"), and liquids. Many other divisions have been proposed, but the above classification embraces all real varieties. The elements are likewise classified according to the organs which form them, as labials, linguals, gutturals, nasals, etc. A physiological description of the articulate sounds used in English speech, will show the necessary extent of a perfect system of letters, and exhibit the short-comings of our present alphabet.

All the elements of speech are susceptible of separate formation; and in the following description, reference is always intended to the exact sound of each element, and not to the names of the letters.

Emitted breath mechanically modified forms every articulate sound. The breath is first modified in the throat, by a certain amount of constriction in the larynx, wanting which restraint, the air would flow out noiselessly, as in ordinary breathing, or gushingly, as in sighing. The breath is thus economized into a steady stream, and rendered audible by the degree of roughness or "asperation" it acquires when forced through a narrow aperture. This "asperated" current of air, when articulated, forms whispered speech. In passing through the larynx, the breath is further acted on by the opposing ligaments of the glottis (the aperture of the larynx), and sonorous voice is produced. The vocalized or asperated breath receives vowel and articulate modification in its passage through the mouth. When the mouth is sufficiently open to allow the breath to flow without obstruction or oral asperation, the air is molded into the various qualities of *vowel*-sound; and when the channel of the mouth is obstructed, or narrowed so much as to cause a degree of asperation of the breath between the tongue and the palate, the lips, etc., *consonant*-sounds are produced.

The upper part of the mouth is an immovable arch: all variations in the shape of the oral passage are consequently effected by the tongue and the lips. [A nasal variety of vowel-sounds occurs in French—represented by *n* after the vowel-letters. These sounds are formed by depressing the soft palate, which otherwise covers the inner end of the nostrils, and allowing part of the breath to pass through the nose, while the remainder is modified in the usual way.]

Vowels.—When the tongue is raised in its greatest convexity towards the roof of the mouth, but without being so close as to roughen or asperate the breath, the resulting vowel quality is that heard in the word *eel;* and progressively less degrees of elevation produce a series of lingual vowels, of which *Ah* is the most flattened—the lips being equally expanded throughout the series, to allow the breath to escape without labial modification.

When the aperture of the lips is contracted in the greatest degree short of asperating the breath, the resulting vowel-quality is that heard in the word *ooze;* and progressively less degrees of labial contraction form a series of labial vowels, of which *Aw* is the most open—the tongue being retracted throughout the series, to direct the breath without lingual modification forward against the lips.

A third series of vowels is formed by combining elevated positions of the tongue and contracted positions of the lips, or retracted positions of the tongue, and expanded positions of the lips. Of this labio-lingual series, the German *ü* is the most contracted, and the English sound heard in the word *err* the most open.

The following table shows the principal vowels of each class:

	Lingual.	Labio-Lingual.	Labial.
Close	*ee(l)*	*ü*	*oo(ze)*
Medial	*ai(l)*, *e(re)*	*eu*, *ö*	*o(ld)*, *o(re)*
Open	*ah*	*e(rr)*	*a(ll)*

The possible modifications of the oral channel are endless, and untraceably minute, as are the shades of vowel-quality heard in dialects, and among individual speakers. In English, there are altogether *thirteen* established varieties, as heard in the words *eel, ill, ale, ell, an, ask, ah, err, up, all, ore, old, ooze.* Besides these, which a perfect alphabet must represent, we have the diphthongal sounds heard in the words *isle, owl, oil,* and the asperated compound *yoo*—the sound of the letter *u* in *use*—which is often, but erroneously, supposed to be a diphthongal vowel.

The Aspirate H.—The letter H (see ASPIRATE) represents an expulsive breathing, modified by the form of the vocal element which follows it—as in *he, hay, high, hoe,* etc., in which the H will be observed to have the quality of *ē, ā, ī, ō,* etc., but without the laryngal contraction, and consequent asperation of the breath, which forms a whispered vowel.

Consonants.—When the tongue is raised convexly against the back of the palatal arch

so as to stop the breath, the separation of the tongue from the roof or back of the mouth is accompanied by a percussive effect, which is represented in the English alphabet by C, K, and Q, and by G when the obstructed breath is vocalized. While the tongue is in this obstructive position, if the soft palate be depressed so as to uncover the inner end of the nostrils, the breath will pass through the nose. This, with vocalized breath, is the formation of the element represented in English, for lack of an alphabetic character, by the digraph *ng*.

[The percussive effect of K—G is slightly modified by the point at which the tongue leaves the palate before different vowels, as in the words *key* and *caw;* the consonant of the latter word being struck from the soft palate, and that of the former word further forward, from the hard palate. A peculiar Anglicism of pronunciation is derived from the substitution of the anterior for the posterior formation of K—G in certain words, as *kind, card, guide, guard, girl*, etc.]

When the fore-part of the tongue is raised to the front of the palate, so as to stop the breath, the separation of the tongue is accompanied by the percussive effect which is represented by T, and by D when the obstructed breath is vocalized. The uncovering of the end of the nostrils while the tongue is in this obstructive position produces, with vocalized breath, the sound represented by N.

When the lips are brought in contact (the lower lip rising to join the upper lip), their separation from the obstructive position is accompanied by the percussive effect represented by P, and by B when the obstructed breath is vocalized. The uncovering of the nares while the lips are in contact produces, with vocalized breath, the sound represented by M.

The remaining consonants are all of the continuous or non-obstructive class; the organs of articulation being so placed as merely to narrow the apertures, central or lateral, through which the breath issues with a degree of hissing or asperation.

The elevation of the base of the tongue so as to leave a narrow aperture between its center and the back-part of the palate, forms, with vocalized breath, the sound of Y initial as in *ye*. The sound of *y* resembles that of the vowel *ē*, but with the contracted aperture and resulting oral asperation of the breath essential to a consonant. The same position with voiceless breath forms the German *ch* as in *ich*—an element which is heard in English as the sound of H before *ū*, as in *hue*. [The Scotch guttural heard in *loch* differs from this only in the more retracted position of the tongue, which is approximated to the soft instead of the hard palate. The same position with vocalized breath produces the soft Parisian *burr*. The approximation of the concave root of the tongue to the fringe of the soft palate causes the uvula to flutter in the breath, and forms the rough Northumbrian burr.]

The elevation of the middle of the tongue towards the front of the palatal arch, with a narrow central passage for the breath, produces the element which, for lack of an alphabetic character, is represented by the digraph *Sh;* and the same position forms, with vocalized breath, the common element heard in *pleasure, seizure*, etc., but which has no appropriate literal symbol in English.

The approximation of the flattened point of the tongue to the front of the mouth, so as to leave a narrow central passage between the tongue and the upper gum, forms the sound represented by S; and by Z when the breath is vocalized.

The elevation of the tip of the tongue towards the rim of the palatal arch causes a degree of vibration of the edge of the tongue, and consequent asperation of the breath, proportioned to the degree of elevation, which is the English sound of the letter R. [R final, or before a consonant, has little or no asperation, but has almost the pure sonorousness of a vowel, as in *err, earn*, etc. The roughly trilled Scotch or Spanish R is formed by the quivering of the whole fore-part of the tongue as it is laxly approximated to the palate.]

The approximation of the lower to the upper lip, so as to leave a central aperture for the breath, produces, with vocalized breath, the sound of W initial, as in *woo*. The sound of *w* resembles that of the vowel *oo*, but with a more contracted aperture. The same position, with voiceless breath, forms the element represented, for lack of an alphabetic character, by the digraph *Wh*.

The remaining varieties of English articulate sounds are formed by forcing the breath through *lateral* apertures, instead of one central aperture.

When the fore-part of the tongue is spread against the front of the palate, and vocalized breath passes laterally over the middle of the tongue, the sound of L is heard. [The same position of the tongue forms, with voiceless breath, the sound of *Ll* in Welsh. The English L, as heard before *ū* (= *yoo*) is modified by convexity of the back-part of the tongue towards its position for Y, forming the sound which is represented in Smart's dictionary by L', as in *lure*, pronounced *l'oor*. A peculiar Gaelic variety of L is formed by raising the back-part of the tongue to the soft palate, and passing the voice laterally over the root of the tongue.]

When the tip of the tongue is applied to the upper teeth (or the gum), and the breath is emitted laterally over the point of the tongue, the sound of the digraph *Th* as in *thin* is heard; and, with vocalized breath, the sound of *Th* in *then*—neither of which elements is represented in our alphabet.

When the middle of the lower lip is applied to the edge of the upper teeth, and the

breath is emitted laterally between the teeth and the lip, the sound represented by F is produced; and, with vocalized breath, the sound of V.

Liquids.—The voice is so little intercepted in passing through the nostrils (forming *m*, *n*, or *ng*), and through the wide apertures of L, and also of R when not initial in a syllable, that the sound has almost the pure sonorousness of a vowel; and these elements have received the name of liquids, to designate their property of syllabically combining with voiceless consonants—seeming to flow into and to be absorbed by them, and losing much of their natural quantity as vocal sounds; as in *lamp, temse, tent, sense, tenth, ink* (= *ingk*), etc.; *milk, spilt, help, self, else, Welsh, health*, etc.; *hark, heart, harp, serf, earth, harsh, horse*, etc. The characteristic effect of the liquids will be best perceived by contrasting such words as *temse* and *Thames, hence* and *hens, else* and *ells, curse* and *curs*—in which the normal influence of vocal consonants on subsequent elements is manifested in the vocalizing of the sibilant in the second word of each pair.

From this review of the physiological varieties of articulate sounds, it will be evident that our alphabet of 26 letters is very imperfect, both by redundancy and deficiency. (1.) The same sounds are represented by more than one letter; as C, K, and Q; C and S; G and J. (2.) The same letter represents more than one sound; as C, which is sometimes K, and sometimes S; G, which is sometimes the vocalized form of K, and sometimes J; N, which is sometimes N, and sometimes *ng;* S, which is sometimes S, and sometimes Z; and Y, which is sometimes a consonant (when initial), and sometimes a vowel, sounded like the letter I. (3.) Single letters are used to represent articulate compounds; as G and J, which are sounded *dzh* [the voiceless form of J is represented by *ch*, as in *chair*]; U, which is sounded *yoo;* and X, which is sounded *ks*, and sometimes *gz*. (4.) The alphabet contains no characters for six of our undoubted consonant elements—viz., Wh, Th(in), Th(en), Sh, Zh, Ng. (5.) Each vowel-letter represents many sound; and the lack of seven characters to denote the excess of our vowel-sounds over the number of our vowel-letters is supplied by about sixty combinations of two or of three letters, so that the original phonetic character of the alphabet is almost entirely lost in the confusion of our orthography.

Consonants form, as it were, the bare and bony skeleton of speech; vowels give definite shape and individuality to words. Thus the consonants *sprt* constitute the common skeleton of such diverse words as *sport—spirt, sprat—sprite, spirit, support, separate, aspirate—asperate*, which receive their distinct configuration and filling up from the vowel-sounds, which cover the consonant skeleton with molded elegance and variety. Consonants are thus the more stable elements of words, and their interchanges in the corresponding words of allied tongues are found to follow certain general laws dependent on the relations and affinities of letters. See GRIMM'S LAW. These relations are exhibited in the following table:

	SHUT.		OPEN.		NASAL.	
	Sharp.	Flat.	Sharp.	Flat.	Sharp.	Flat
1. Labials	*p*	*b*	*f*	*v*	†	*m*
			wh	*w*		
			th	*dh*		
			s	*z*		
2. Linguals	*t*	*d*	*sh*	*zh*		*n*
			*	*r*		
			ll (Welsh)	*l*		
3. Gutturals	*k*	*g*	*ch* (loch)	*gh*		*ng*
			ch (ich)	*y*		

In pronouncing the letters of the first class, the lips are chiefly concerned; in the second, the principal organ is the tongue, or the tongue and the teeth (whence they are also called *dentals*); and in the third, the back-parts of the tongue and palate are employed. But while all the sounds of each class have thus a common organic relation, the first pair differs from the other letters of the same class by being *obstructive* or shut—otherwise called *mute* (q.v.); the remaining letters, having open apertures, are *continuous* or sibilant in effect—otherwise called asperate (q.v.). The difference also between the members of the several pairs is of the same kind throughout; *p* differs from *b* as *f* does from *v*, or *t* from *d*, or *sh* from *zh*.

In Mr. Ellis's *Plea for Phonetic Spelling*, and Mr. Melville Bell's *Principles of Speech*, the student will find a complete development of the theory of articulate sounds. Various attempts have been made to introduce a system of phonotypes, in which each sound should be represented by one invariable character. None of the schemes comes near in success to the system of *Visible Speech* (q.v.) published by Mr. Melville Bell some years ago

* The "sharp" or voiceless *r* is of frequent but unrecognized occurrence. It is heard in French, as the sound of *r* final after a consonant, as in *theatre;* and in Scotch, as a substitute for *thr*, as in *three*, pronounced *rhee*.

† The "sharp" forms of the nasals are in constant use as interjectional sounds, as in *humph!* (pronounced *'hm!*), *'hn!* (expressive of sneering), and *'mhm!* used as an affirmative in Scotland.

LETTER-WOOD, one of the most beautiful productions of the vegetable kingdom; it is the heart-wood of a tree found sparingly in the forests of British Guiana, the *piratinera guianensis* of Aublet, and the *brosimum aubletii* of Poeppig, belonging to the bread-fruit family (*artocarpaceæ*). It grows from 60 to 70 ft. high, and acquires a diameter of from 2 to 3 feet. The outer layers of wood (alburnum) are white and hard; the central portion, or heart-wood, which rarely exceeds 7 in. in thickness, is extremely hard and heavy, and is of a rich dark-brown color, most beautifully mottled with very deep brown, almost black spots, arranged with much greater regularity than is usually the case in the markings of wood, and bearing a slight resemblance to the thick letters of some old black-letter printing. Its scarcity and value make it an article of rare and limited application. It is used only in this country for fine veneer and inlaying work, and in Guiana for small articles of cabinet-work. The natives make bows of state of it, but are said to prefer a variety which is not mottled.

LETTIC RACE, a branch of the Slavic family, subdivided into the Lithuanian, the Prussian, and the Lettic proper. The Lithuanian has preserved certain characteristics of the Indo-European languages, some of which are identical with those of the Sanskrit. It appears to be the connecting-link between the Slavic and the other Indo-European languages, and is particulary necessary for the understanding of Slavic. This tongue is spoken among the peasantry, to the number of 200,000, in some parts of East Prussia, about the towns of Memel, Tilsit, etc.; while nearly 1,300,000 of the same people are found in Russia. The Prussian language was formerly spoken along the shores of the Baltic, between the Niemen and the Vistula, by about 2,000,000 people, but has gradually been superseded by the German. The Lettic race proper still exists in Courland, in Livonia, and on the peninsula that separates the Curische sea from the Baltic. Here the Lettic language is spoken, which bears about the same relation to the Lithuanian that the Italian does to the Latin, being a modernized dialect of the older tongue. The Lettes of Livonia, now occupying the s.w. part of the province, are naturally intelligent, and are very apt in any constructive process requiring handiwork. They make their own furniture, rude agricultural implement, and other necessaries, but have no aptitude for trade, and are not energetic. They number in Livonia between 300,000 and 400,000, and though serfs until emancipated in 1818, are now in about the same condition as the German peasantry. Both women and men ride on horseback or in sledges: their dwelling-houses have different apartments, an oven, and chimneys; differing from those of the Esthonians, which have but one room and no chimney, though these also form a part of the population of Livonia. The early history of Livonia is unknown, as it was not until 1158 that any trade was opened between that country and the rest of Europe, or any information spread abroad concerning it. Germans settled there a few years later, and converted the natives to Christianity. In the earliest times Livonia belonged to Russia, paying tribute, but having its own government. During the troubles in Russia the Livonians made themselves independent, but were again brought under subjection in the time of Peter the great. The first mention of Lithuania occurs in a chronicle of A.D. 1009, and it was not until the 13th c. that the half-savage barbarians inhabiting the country were conquered by the warrior-monks sent hither by Albert, bishop of Riga. The Lithuanians remained idolaters until the end of the 14th c., their deities presiding over the seasons, elements, and particular occupations. It is to be remembered that the Lithuanians are Lettes, although their language is more ancient than the existing Lettonian, which may be said to be one of its dialects. The only existing monuments of the old Lithuanian language are a cathecism in Prussian, compiled about 1545; and an Euchiridion or church-service (Königsberg, 1561). The Lettonian differs from the other Lithuanian dialects in having an admixture of Finnish words. It has been employed in the translation of the Bible, and it is honored with a professorship in the university of Dorpat.

LETTRES DE CACHET, the name given to the famous warrants of imprisonment issued by the kings of France before the revolution. All royal letters (*lettres royaux*) were either *lettres patentes* or *lettres de cachet.* The former were open, signed by the king, and countersigned by a minister, and had the great seal of state appended. Of this kind were all ordinances, grants of privilege, etc. All letters-patent were registered, or *enterinated,* by the parliaments. But these checks on arbitrary power did not exist with regard to lettres de cachet, also called *lettres closes,* or sealed letters, which were folded up and sealed with the king's little seal (*cachet*), and by which the royal pleasure was made known to individuals or to corporations, and the administration of justice was often interfered with. The use of lettres de cachet became much more frequent after the accession of Louis XIV. than it had been before, and it was very common for persons to be arrested upon such warrant, and confined in the Bastile (q.v.), or some other state prison, where some of them remained for a very long time, and some for life, either because it was so intended, or, in other cases, because they were forgotten. The lieut.gen. of the police kept forms of lettres de cachet ready, in which it was only necessary to insert the name of the individual to be arrested. Sometimes an arrestment on lettres de cachet was a resource to shield criminals from justice.

LETTUCE, *Lactuca,* a genus of plants belonging to the natural order *compositæ,* suborder *cichoraceæ,* having small flowers with imbricated bracteæ, and all the corollas ligu-

late, flatly compressed fruit, with a thread-like beak, and thread-like soft, deciduous pappus.—The GARDEN LETTUCE (*L. sativa*) is supposed to be a native of the East Indies, but is not known to exist anywhere in a wild state, and from remote antiquity has been cultivated in Europe as an esculent, and particularly as a salad. It has a leafy stem, oblong leaves, a spreading flat-topped panicle, somewhat resembling a corymb, with yellow flowers, and a fruit without margin. It is now generally cultivated in all parts of the world where the climate admits of it; and there are many varieties, all of which may, however, be regarded as sub-varieties of the COSS LETTUCE and the CABBAGE LETTUCE, the former having the leaves more oblong and upright, requiring to be tied together for blanching, the latter with rounder leaves, which spread out nearer the ground, and afterwards *boll* or roll together into a head like a small cabbage. The lettuce is easy of digestion, gently laxative, and moderately nutritious, and is generally eaten raw with vinegar and oil, more rarely as a boiled vegetable. The white and somewhat narcotic milky juice of the plant is inspissated, and used under the name of *lactucarium* (q.v.), or *thridace*, as an anodyne, sedative, opiate medicine. The best and most useful kind of this juice is obtained by making incisions in the flowering stems, and allowing the juice which flows to dry upon them. Lettuces are sown in gardens from time to time, that they may be obtained in good condition during the whole summer. In mild winters they may be kept ready for planting out in spring.—The other species of this genus exhibit nothing of the bland quality of the garden lettuce.—The STRONG-SCENTED LETTUCE (*L. virosa*) is distinguished by the prickly keel of the leaves, and by a black, smooth seed, with a rather broad margin. It is found in some parts of Britain. *Lactucarium* is prepared from its fresh-gathered leaves in the flowering season. The leaves have a strong and nauseous, narcotic and opium-like smell.—*L. perennis* adorns with beautiful blue flowers the stony declivities of mountains and clefts of rocks in some parts of Germany, as in the Harz, etc., but is not a native of Britain, which, however, possesses one or two other species in qualities resembling *L. virosa*.

LEUCA'DIA, the ancient name of SANTA MAURA (q.v.).

LEUCH'TENBERG. See BEAUHARNAIS.

LEU'CINE (derived from the Greek word *leucos*, white) belongs to the class of bodies to which chemists now apply the term amido-acids, and which are substances in which one equivalent of the hydrogen of the radical of an acid is replaced by one equivalent of amidogen (NH_2). The empirical formula for leucine is $C_{12}H_{13}NO_4$, while that of caproic acid (whose amido-acid it is supposed to be) is $C_{12}H_{12}O_4$. It is obvious that if for one of these twelve equivalents of hydrogen one equivalent of amidogen is substituted, the latter formula becomes $C_{12}H_{11}(NH_2)O_4$, which contains the same equivalents as the formula $C_{12}H_{13}NO_4$, but indicates more closely their mode of grouping.

Leucine is of great importance in physiological chemistry, being a constituent of most of the glandular juices of the body. Considering the sources from which it is obtained artificially, there can be no doubt that the leucine found in the body is one of the numerous products of the regressive metamorphosis of the nitrogenous tissues.

LEUCIP'PUS, the founder of the atomistic school of Grecian philosophy, and forerunner of Democritus (q.v.). Nothing is known concerning him, neither the time nor the place of his birth, nor the circumstances of his life.

LEUCIS'CUS, a genus of fresh-water fishes, of the family *cyprinidæ*, containing a great number of species, among which are the roach, ide, dace, graining, chub, red-eye, minnow, etc. There are no barbels. The anal and dorsal fins are destitute of strong rays.

LEU'CITE (Gr. λευκος, white), a natural silicate of alumina and potash, belonging to the feldspar section. It crystallizes in the monometric system, the usual form being that of the trapezohedron; surfaces of crystals are even, without much luster. It is often found in grains. Hardness 5.5 to 6; sp. gr., 2.483 to 2.49 (Dana). It has a vitreous appearance, and a smoky gray color. Translucent to opaque. Fracture conchoidal. A specimen analyzed by Klaproth from Mt. Vesuvius gave: Silica, 53.75; alumina, 24.625; potash, 21.35 = 99.725. Another from Pompeii gave: Silica, 54.5; alumina, 23.5; potash, 19.5. Before the mouth blow-pipe flame it is infusible, except with borax or carbonate of lime, when it melts to a clear globule. On the addition of cobalt solution to the globule, and reheating, a very beautiful blue is produced. This mineral is abundant on the Rhine, near Andernach, but at Vesuvius the finest crystals are found. Some of the older lavas appear to be chiefly composed of it, especially near Rome and Albano. The leucitic lavas near Rome have been used for 2,000 years for making millstones, and such stones already formed have been found in the excavations at Pompeii. From having a form somewhat resembling a common variety of garnet it has been called white garnet. Leucite sometimes becomes changed to glassy feldspar.

LEUCKART, KARL GEORGE, FRIEDRICH RUDOLF, b. Helmstedt, Brunswick, 1823; a student of medicine and natural science under Wagner at Göttingen, and in 1850 appointed professor of zoology and comparative anatomy at the university of Giessen. His helminthological researches have attracted particular attention.

LEUCOCYTHE'MIA (derived from the Greek words *leucos*, white, *cytos*, a cell, and *hæma*, blood) is a disease in which the number of white corpuscles in the blood appears

to be greatly increased, while there is a simultaneous diminution of the red corpuseles. The disease was noticed almost at the same time (in 1850) by Bennett of Edinburgh and Virchow of Würzburg; the former giving it the name standing at the beginning of the article, while the latter gave it the less expressive name of *leukæmia*, or *white blood*.

The increase of the white or colorless corpuscles seems to be always accompanied, and probably preceded, by other morbid complications, of which the most frequent are enlargement of the spleen, of the liver, and of the lymphatic glands. In 19 cases, it was found that enlargement of the spleen was present in 16, enlargement of the liver in 13, and enlargement of the lymphatics in 11 instances. Hence, tumefaction of the abdomen is one of the most prominent symptoms.

The microscopic examination of a single drop of blood is suffieient to determine the nature of the disease. The causes of leucocythemia are unknown; and although the most varied remedies have been tried, the disease is almost invariably fatal.

LEU'COL, LEUCOLINE, or QUINOLINE ($C_{18}H_7N$), is one of the compounds obtained by the distillation of coal-tar. It is also obtained by the distillation of quinine, cinchonine, or strychnine with potash. It is a colorless and strongly refracting oil, which boils at about 460°, has a specific gravity of 1.081, is insoluble in water, is soluble in alcohol and ether, and neutralizes acids, forming crystallizable salts with them. On boiling 2 parts of leucol with 3 of iodide of amyl, crystals are obtained, which, when dissolved in water, treated with an excess of ammonia, and boiled for some time, yield a resinous substance, which is readily soluble in alcohol, and furnishes a splendid blue dye.

LEUCO'MA (derived from the Greek word *leucos*, white) is the term applied to a white opacity of the cornea—the transparent front of the eye (q.v.). It is the result of acute inflammation, giving rise to the deposition of coagulable lymph on the surface, or between the layers of the cornea. It is sometimes reabsorbed on the eessation of the inflammation, and the cornea reeovers its transparency; but in many cases it is persistent and incurable.

LEUCORRHŒ'A (Gr. *leukos*, white, and *rheo*, I flow) is a female disease, in which the most prominent symptom is the discharge of a glairy fluid, often in a considerable quantity. For the special character of this complaint, we must refer to medical treatises; it is sufficient here to say that its general treatment consists in fomentations, the application of emolients, and in the administration of tonics and astringents.

LEUCO'THEA. See INO.

LEUC'TRA, aneiently, a village of Bœotia, in Greece, famous for the great victory which the Thebans under Epaminondas (q.v.) here won over the Spartan king Cleombrotus (371 B.C.), in consequenee of which the influence exercised by Sparta for centuries over the whole of Greece was broken forever.

LEUK, a small t. (pop. about 1200) in the canton of Valais, Switzerland, on the right bank of the Rhone, 15 m. above Sion. It is noted in association with the baths of Leuk, situated 8 m. northward at the head of the valley of the Dala and the foot of the ascent over the Gemmi pass. At this place, which is 4,500 ft. above the sea, there is a hamlet of 600 inhabitants, and several lodging-houses and hotels for the accommodation of patients and travelers. The springs have a high temperature (120° F.), are slightly saline, chalybeate, and sulphureous, and are used both for drinking and bathing. They are chiefly useful in diseases of the skin; and one peculiarity is the length of time the patients remain in the baths—as long as 8 hours a day. For this purpose there are several apartments of 20 ft. square, in which as many as 15 or 20 persons of both sexes, clad in long woolen dresses, bathe in common; sitting up to their necks in water, they beguile the time with conversation, chess, reading the newspapers, etc. There appears to have been a bathing establishment here as early as the 12th century.

LEURET, FRANÇOIS, 1797–1851; b. Nancy, France. Being unable to complete his medical studies from want of money, he enlisted as a private soldier, and while with his regiment attended the lectures of the celebrated alienist Esquirol, and through the influenee of a friend he procured a diseharge from the army and a situation as an assistant in the insane asylum of Royer-Collard, at Charenton. He was soon appointed one of the house physicians of the asylum. Before graduating in medicine he published several medical essays. In 1826 he received his degree of doctor in medicine, and returned to Nancy to practice his profession, but soon went again to Paris and became Esquirol's assistant, and took the editorial charge of the *Annales d'Hygiène et de Médecine Légale*. In 1832, with two friends, he published a paper on the frequency of the pulse in the insane, and also on head measurements. In 1834 he published his celebrated *Fragments Psychologiques*. In 1840 appeared his *Traitement Moral de la Folie*, a work which placed him as the compeer of the most brilliant psychologists. He was afterwards appointed director-in-chief of the Bicêtre, and published other works.

LEU'THEN, a village of Prussia, in Lower Silesia, 9 m. w. of Breslau, celebrated for the victory won there, Dec. 5, 1757, by Frederick the great, with 33,000 men, over the Austrians under prinee Charles of Lorraine at the head of 92,000. The Austrians lost 7,000 killed and wounded, 21,500 prisoners, and 134 pieces of artillery; the Prussians,

3,000 killed and wounded. The result was the reconquest of the greater part of Silesia by the Prussians. Pop. 870.

LEUT'SCHAU (Hung. *Lövze*), a t. of Hungary, in the co. of Zips, 126 m. n.e. from Pesth. Leutschau has the oldest Lutheran college in Hungary. The inhabitants, three-eighths of whom are Protestants, are mostly occupied in agricultural pursuits. A peculiar kind of mead made here has a large sale not only in Hungary, but in Poland and Silesia. Pop. '80, 6,600.

LEUTZE, EMANUEL, 1816–68; b. Würtemberg. His parents emigrated in his infancy to Philadelphia. A picture which he made of an Indian gazing at the setting sun first attracted attention to his talent, and brought him orders enough to enable him to go abroad for study in 1841. At Düsseldorf he became a pupil of Lessing. His picture of "Columbus Before the Council of Salamanca," painted while in Europe, was purchased by the Düsseldorf art union of New York. In 1843, while in Munich, he completed "Columbus Before the Queen." He resided at Düsseldorf until 1859, when he returned to the United States, and was generally engaged till his death on grand paintings commemorating events in the history of the United States. The following are among the best known: "The Landing of the Norsemen in America;" "Cromwell and His Daughter;" "The Court of Queen Elizabeth;" "Henry VIII. and Anne Boleyn;" "The Iconoclast;" "Washington Crossing the Delaware;" "Washington at Monmouth;" "News from Lexington;" and "Westward the Star of Empire takes its Way." The latter is of great size, and occupies a panel over one of the grand stairways of the capitol at Washington. He died in Washington.

LËUWENHOECK, ANTOINE VAN, 1632–1723; b. Delft, Holland; was a grinder of optical glasses, and famed for the excellence of his microscopes. Though without the advantages of a liberal education, he was induced to employ his microscopes in histological investigations, and met with great success. He refuted several errors as to physiological conditions, and made some important experiments on the brain and nervous system. He also examined and described the crystalline lens. He contributed many papers to the memoirs of the academy of sciences, and an account of some of his discoveries was published in the *Philosophical Transactions* of the royal society of London, of which he became a fellow in 1680. One of his most important investigations was that by which he discovered in 1690 that the arteries and veins were continuous. He opposed the doctrine of fermentation in the blood, and also made minute examinations of the blood globules, whose form and composition he described, advancing a theory which afterwards formed the basis of that of Boerhaave on inflammation. Queen Mary and the czar Peter the great visited him at Delft, and were charmed with the wonderful sights which they witnessed through his microscopes. His writings were collected in 1695–99, and printed in Latin (Delft, 4 vols. 4to); they were published in Delft and Leyden in Dutch; and an English translation appeared in London a century later (1798–1800). Lëuwenhoeck claimed the first discovery of the spermatic animalcules in 1677.

LEUZE, a t. of Belgium, in the province of Hainault, 17 m. n.w. from Mons, on the right bank of the Dender, and not many miles from its source. Dyeing, bleaching, brewing, and distilling are actively carried on; also salt-refining and the expressing of oil. Woolen and cotton hosiery and lace are manufactured. Pop. '80, about 6,100.

LE VAILLANT, FRANÇOIS, a distinguished traveler and naturalist, particularly eminent as an ornithologist, was b. in 1753 at Paramaribo, in Dutch Guiana, where his father, a rich French merchant, was then French consul. When he was 10 years of age, his father returned to Europe and settled at Metz, his native place. Young Le Vaillant received a good education. Beginning as a mere sportsman, he soon became an ornithologist. In 1777 he visited Paris, and inspected the rich collections of natural history there. He was now seized with a strong desire to visit unexplored countries, and embarked, at Amsterdam, in a Dutch vessel for the cape of Good Hope. Owing to the accidents of war, which had broken out between Britain and Holland, Le Vaillant found himself at the cape with nothing but his fowling-piece, ten ducats, and the clothes he had on. He found friends, however, in some of the Dutch officials, who assisted him, and provided him with the means of carrying out his intention of South African explorations. He made two principal excursions: the first from Dec., 1781, to April, 1782, eastward, at no great distance from the coast, to the Great Fish river, whence he returned by a more northern route through mountainous regions; the second, in 1783 and 1784, northwards from Cape Town as far as the tropic of Capricorn. In both journeys, his love of adventure was sufficiently gratified, and in the second he endured hardships not inconsiderable. Finding that his health suffered from fatigue and from the climate, he wisely relinquished further projects of travel, and returned to Europe, taking up his abode in Paris, where he devoted himself to the stuffing of his collection of skins of birds and other animals, an art in which he excelled, and to the preparation of works giving an account of his travels and of his discoveries in natural history. In 1793, during the reign of terror, he was thrown into prison, and only escaped the guillotine through the fall of Robespierre. He now retired to a small property at La Noué, near Sezanne, where he chiefly resided during the remainder of his life. He died Nov. 22, 1824, at the age of 71.

Le Vaillant's chief works are his travels (*Voyage dans l'Intérieur de l'Afrique*, Paris, 1 vol. 4to, or 2 vols. 8vo, 1790; and *Second Voyage dans l'Intérieur de l'Afrique*, 2 vols. 4to, Paris, 1796), which were speedily translated into English and other languages, and are remarkable for their spirited narration of incident, and the interest with which every subject is invested; and his *Natural History of the Birds of Africa* (6 vols. 4to, Paris, 1796–1812). He published also several works on particular departments of ornithology, as a *Natural History of Paroquets*, a *Natural History of Birds of Paradise*, etc. He made many discoveries in various departments of natural history, but chiefly in ornithology.

LEVANT', THE—from the Italian *Il Levante*, the *Orient*, or *Rising*, that is, the e.—a name employed throughout the whole of Europe to designate the eastern parts of the Mediterranean sea and adjacent countries. In a wider sense, it is applied to all the regions eastward from Italy, as far as the Euphrates and the Nile; but more generally is used in a more restricted sense, as including only the coasts of Asia Minor, Syria, and Egypt.

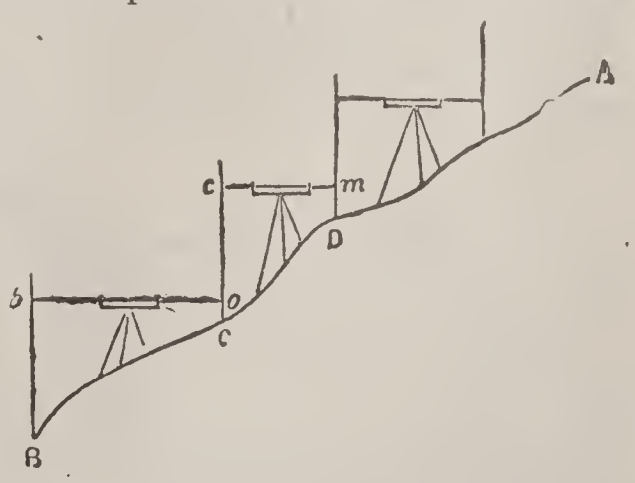
LEVANT AND COUCHANT, a phrase in English law applied to cattle which have strayed into another's lands, and have been so long there that they have lain down and slept there.

LEVA'RI FA'CIAS, WRIT OF, in English law, is a writ of execution issued upon a judgment, by which the judgment creditor takes the real and personal estate, such as lands, houses, furniture, etc., of his debtor to satisfy his debt. The mode by which this was done was by the sheriff drawing the rents and paying the creditor. The writ is now practically superseded by the writ of *elegit* (q.v.) as regards real estate, and *fieri facias* (q.v.) as regards personal estate.

LEV'EE, the state ceremonial of the sovereign receiving visits from those subjects whose position entitles them to that honor. By the usage of the court of Great Britain, a levee differs from a drawing-room in this respect, that gentlemen only are present (excepting the chief ladies of the court), while at a drawing-room both ladies and gentlemen appear. The name is owing to such receptions being originally held in the monarch's bedchamber at the hour of rising (Fr. *lever*).

LEVÉE, the French name for an embankment (q.v.)

LEVEL AND LEVELING. Level is a term applied to surfaces that are parallel to that of still water, or perpendicular to the direction of the plumb-line; it is also applied to the instrument employed in determining the amount of variation from perfect levelness. The instrument is a cylindrical glass tube very slightly convex on one side, and so nearly filled with water, or, what is better, with alcohol, that only a small bubble of air remains inside. The level is then mounted on a three or four legged stand, with its convex side upwards, and by means of a pivot and elevating screws, is made capable of assuming any required position. If the level be properly constructed, the bubble should lie *exactly* in the middle of the tube when the instrument is properly adjusted, and, at the same time, the line of sight of the telescope attached to the level should be accurately parallel to the surface of still water. In ordinary levels, this first condition is seldom seen, and, instead, two notches are made on the glass to mark the position of the two extremities of the bubble when the instrument is level. The tube and bubble should be of considerable length to insure accuracy. The leveler requires two assistants, each furnished with a pole from 10 to 14 ft. high, and graduated to feet and inches, or feet and tenths of feet. If he wishes to measure the height of A above B, he may do this by beginning either at A or B. Let the latter be the case, then one assistant is placed at B, holding his pole upright; the other is sent forward to C (which must be below the level of the top of the pole at B); the surveyor, who places himself between them, reads off the height B*b*, which he puts down in the back-sight column of his book, and then turns the level to C, reading off C*o*, which is entered in the front-sight column. The surveyor and his assistant at B then take up new positions, the latter at D; the back-sight C*c* and the front-sight D*m* are read off, and the process is repeated till one of the assistants reaches A. The excess of the sum of the back-sights over that of the front-sights gives the height of A above B. A little consideration will show that this method can only hold true when practiced on a small scale, and consequently in extensive surveys, the level (as found by the above described method) requires to be reduced by an allowance for the earth's curvature.



LEVEL AND LEVELING (*ante*). Custom has established the measurement of absolute levels from the average surface of the ocean—the mean between high and low water—as the zero level; when reckoned from any other zero level, they are relative levels. Leveling, or finding the difference between the levels of two or more points, is

designated by the term hypsometry in geodesy. There are three principal and independent methods of leveling. The first depends upon the fact that the surfaces of fluids at rest are perpendicular to the direction of the force of gravity; upon this is based the common level. In the second method, trigonometrical leveling, we must know, first, the zenith distance, or the angle between the zenith of the station and the object whose height we wish to find (making a correction for the effect of refraction), and, second, the horizontal distance from the station to the object, determined usually by triangulation. In accurate work a careful adjustment of the theodolite, the instrument used in this method, is necessary. Local attraction sometimes causes a deflection of the plumb-line, thus affecting measurements of zenith distance. Atmospheric refraction is a more important element of uncertainty, for which reason the horizontal distance should not exceed 12 or 15 miles. The coefficient of refraction is irregular, and varies with the temperature and pressure of the atmosphere; it is most steady and nearest its minimum between 10 A.M. and 2 P.M. From the above data, the difference in level is easily calculated. The weight of the atmosphere bearing upon a unit of surface diminishes in a geometrical progression as the heights increase in an arithmetical progression; therefore, by the third method, heights are determined with the barometer. Physicists have constructed numerous formulæ embodying the law of Mariotte, and introducing corrections for temperature, expansion of the air, and the effect of latitude and height upon the action of gravity. It is believed that considerable accuracy can be attained by this method, particularly if the annual means of temperature and pressure for the stations whose difference in level it is desired to find are substituted in the formula. Aneroid barometers have been graduated to indicate heights up to 12,000 or 16,000 ft.; they give only approximate results. If a delicate apparatus for determining the boiling-point of water be used, the corresponding heights taken from a table will give the reading of the barometer at that point, so that the instrument itself can be dispensed with. This depends upon the fact that the boiling-point of water decreases as the pressure of the atmosphere becomes less.

LEVELERS, a party which arose in the army of the long parliament, when it overawed that body, and sent the king to Hampton Court in 1647. They determined to level all ranks and establish an equality of titles and estates throughout the kingdom. Several of the officers belonging to this party were cashiered in 1649, and on the departure of Cromwell for Ireland, at the close of that year, they raised mutinies in various quarters, and were put down by Fairfax with bloodshed. John Lilburn, one of the chiefs of the faction—of whom it was said that, if none but he were left alive in the world, John would quarrel with Lilburn—published in 1649 his *Manifestations from J. Lilburn and others, styled Levelers.* They were not only treated as traitors by the king, but persecuted by Cromwell as dangerous to the state. One of their own works, *The Leveler, or the Principles and Maxims concerning Government and Religion of those commonly called Levelers*, shows that in politics their fundamental principles included: 1. The impartial authority of the law; 2. The legislative power of parliament; 3. Absolute equality before the law; 4. The arming of the people for securing the enforcement of the laws, and the protection of their liberties. In religion they claimed: 1. Absolute liberty of conscience; 2. Freedom for every one to act according to his knowledge, even if this knowledge should be false; 3. Religion to be considered in two aspects—one as the correct understanding of revelation, which is a private affair, the other as its effects manifested in actions, which are subject to the authorities; 4. They condemned all strife on matters of faith and forms of worship. This sect disappeared at the time of the restoration

LE'VEN, Loch, a beautiful sheet of water, of an oval form, in the e. of Kinross-shire, Scotland, measuring between 10 and 11 m. in circuit, and dotted here and there with small islands, the chief of which are St. Serf's inch, at the e. end, 80 acres in extent, with the remains of a religious house of great antiquity (see Culdees), and another of 5 acres opposite the town of Kinross, on which stand the ruins of loch Leven castle. The loch is supplied by several small streams, and empties itself by the Leven into the firth of Forth. It has long been celebrated for the quantity and quality of its trout, which are of excellent flavor, and average about a pound in weight, although some are found of 4, 6, and even 10 lbs. Pike and perch also occur; a pike was caught in 1846 weighing 29 lbs. The rich color of the loch Leven trout is due to the abundance of a certain kind of crustacea upon which they feed. Loch Leven castle is connected with several events in Scottish history, the most noted being the imprisonment of queen Mary in June, 1567. Here she was forced to sign her abdication of the throne; and, after one unsuccessful attempt, succeeded, by the aid of George Douglas, the governor's brother, and of Willie Douglas, "a foundling," supposed to be a relative of the family, in effecting her escape (May 2, 1568).

LEVEN, Loch, an arm of the sea, or rather of loch Linnhe (q.v.), on the w. coast of Scotland, between Argyle and Inverness, is about 11 m. in length, by, on an average, less than 1 m. in breadth, and is remarkable for the wildness and grandeur of its scenery. The current produced in this loch by the ebb and flow of the tide runs at the rate of at least 4 m. an hour.

LEVER, the most simple and common, but, at the same time, most important of the seven mechanical powers, consists of an inflexible rod—straight or bent, as the case may be—supported at some point of its length on a prop which is called the *fulcrum*, and having the *weight* to be moved and the *power* to move it applied at other two points. In the accompanying illustration (fig. 1, *a*), AB is the lever, F the fulcrum, A and B the points of application of P and W, the power (or pressure) and weight respectively. If the arms AF and BF be equal, the power P and the weight W must also be equal to produce equilibrium; if the arm of the power AF be longer than the arm of the weight, BF, then, to produce equilibrium, the power P must be less than the weight W, and *vice versâ;* if AF be double the length of BF, then B, to produce equilibrium, must be half of W; and, generally, as is shown in the elementary treatises on mechanics, *the power and weight are in the inverse ratio of their distances from the fulcrum.* This is equally true for straight or bent levers; but (fig. 1, *b*) the distance of the power and weight from the fulcrum is not, in all cases, the actual length of the arms, but the lengths of perpendiculars from the fulcrum upon the directions of the power and weight. This principle holds good, whatever be the relative positions of the power, weight, and fulcrum; and as there can be three different arrangements of these, we thus obtain what are called "the three kinds of levers." *The first kind* (fig 2) is where the fulcrum is placed between the power and the weight; the balance (q.v.), spade (when used for raising earth), see-saw, etc., are examples of this; and scissors and pincers are examples of double-levers of the same kind. Levers of *the second kind* (fig. 3) are those in which the weight is between the power and the fulcrum; examples of this are the crowbar, when used for pushing weights forward, the oar—the water being the fulcrum and the row-lock the point of application of the weight—and the wheelbarrow; and of double-

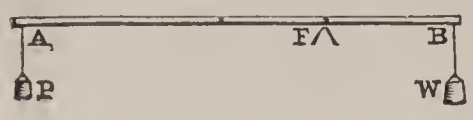


Fig. 1, *a*.

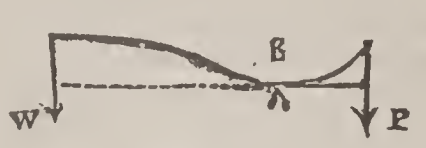


Fig. 1, *b*.

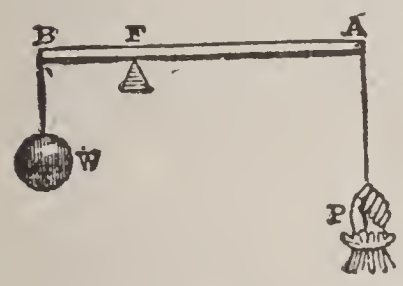


Fig. 2

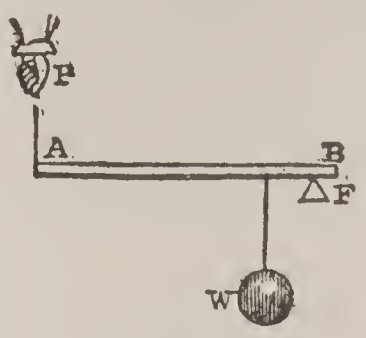


Fig. 3.

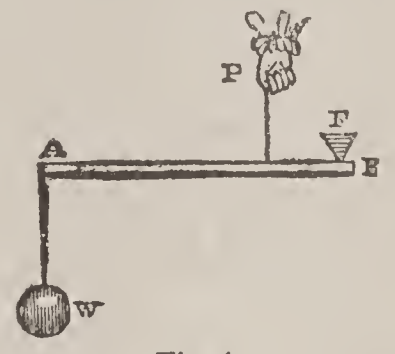


Fig. 4.

levers of this kind we have nut-crackers as an example. In levers of *the third kind* (fig. 4), the power is between the weight and the fulcrum. Fishing-rods, whips, umbrellas and most instruments used with the hand alone, are levers of the third kind, and shears tongs, etc., are examples of double-levers of this class. It is evident that, to produce equilibrium in levers of the first kind, the power may, according to the ratio of the lengths of the arm, be either greater or less than the weight; in the second kind, it must always be less; and in the third kind, always greater. This is expressed in technical phrase by saying that the first kind of lever gives a *mechanical advantage* or *disadvantage* (see MECHANICAL POWERS), the second always gives a mechanical advantage, and the third always a mechanical disadvantage. Levers of the second kind, having the same mechanical advantage, are, when worked by man, twice as powerful as those of the first kind, because in the one case he uses his muscular force as the power, in the other case only his weight. Levers of the third kind are used when velocity, or a large extent of motion, is required at the expense of power, and we consequently find this form much used in the structure of the limbs of animals. The structure of the human arm (fig. 5) is a very good example of this; the fulcrum is the socket (C) of the elbow-joint, the power is the strong muscle (the *biceps*) which passes down the front of the *humerus*, and is attached at A to the *radius* (see ARM); the weight is the weight of the forearm, together with anything held in the hand, the two being supposed to be combined into one weight acting at B. By this arrangement, a large extent of motion is gained, by a slight contraction or extension of the muscle.

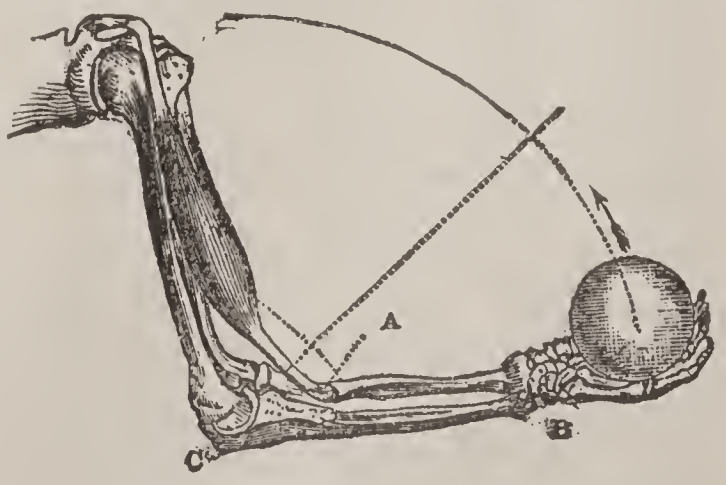


Fig. 5.

When a large mechanical advantage is required, this may be obtained, without an inordinate lengthening of the lever, by means of a combination of them (as in fig. 6).

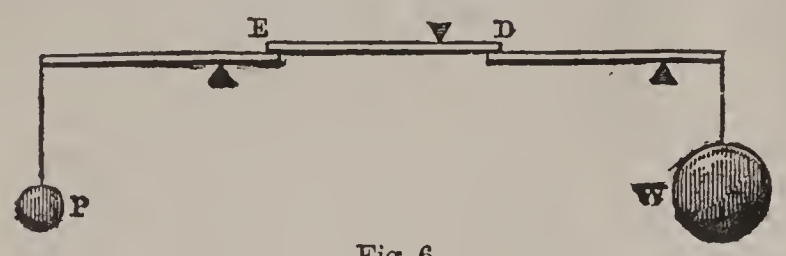


Fig. 6.

Here the levers have their arms in the ratio of 3 to 1, and a little consideration will make it plain that a power (P) of 1 lb. will balance a weight of 27 lbs.; but in this instanee the particular defect of the lever as a meehanieal power shows itself prominently; for if the weight has to be lifted 2 in., the power requires to be depressed (2×27 or) 54 in.; and, as the extent of sweep of the power cannot be largely increased without inconvenience, the advantages of this machine are confined within narrow limits.

LÉVÊQUE, Jean Charles, b. Bordeaux, France, 1818. He made careful study of the Greek and Alexandrian philosophers, and resided at Athens 1847–48. In 1856 he was appointed professor in philosophy at the college de Franee; in 1865 a member and in 1873 a viee-president of the academy of moral and politieal seienees. His writings are remarkable for erudition, and his work *La Science du Beau* received several prizes from French academies.

LEVER, Charles, Irish novelist, was b. in Dublin, Aug. 31, 1806. He was educated for the medieal profession, studying first at Trinity college, and afterwards on the continent. After taking his degree at Göttingen, he was attached (as physician) to the legation at Brussels, and, on his resignation of that post, became editor of the *Dublin University Magazine.* He opened his brilliant literary career by *Harry Lorrequer;* after which he published a whole library of fiction, the larger proportion of which was issued in the serial form with illustrations. Among Lever's best novels may be speeified *Charles O'Malley; Tom Burke; Roland Cashel; The Knight of Gwynne; The Dodd Family Abroad; Davenport Dunn.* When he undertook the editorship of the famous Irish magazine, Lever fixed his residenee in the neigborhood of Dublin; but when, after a few years' trial, his work became distasteful, he removed to Florence. He was appointed viee-eonsul at Spezzia in 1858, and was transferred in 1867 to Trieste, where he died in 1872. The earlier novels of Lever are remarkable for a eertain boisterous mirth and whirl of incident. His ladies and gentlemen seem under the influence of champagne, his peasants and servant-men of "potheen." Latterly, the current of his genius beeame broader and clearer, and several of his later works have a higher interest. A life of Lever by N. J. Fitzpatriek appeared in 1879.

LEVERET, the young of the hare during the first year of its age.

LEVERETT, Frederick Percival, 1803–36; b. at Portsmouth, N. H.; graduated at Harvard in 1821, and was subsequently principal of the Boston Latin sehool. He was the author of a Latin lexicon and various Latin classics. Died in Boston.

LEVERETT, Sir John, Bart., 1616–79; b. in England, and came to Ameriea with his father in 1633. He was an intimate friend of Cromwell and an officer in his army. In Massaehusetts he was speaker of the general court, 1665–71; maj.gen., 1663–73; and deputy governor, 1671–73. He was knighted and made a baronet by Charles II. in 1676.

LEVERETT, John, 1662–1724; b. Boston; grandson of sir John; graduated at Harvard in 1680, and president of the college 1707–24. He was a lawyer and judge, and at one time speaker of the general court, and highly esteemed for his learning.

LEVERRIER, Urbain Jean Joseph, a Freneh astronomer of great celebrity, was b. at St. Lô, in the department of Manche, Mar. 11, 1811. He was admitted into the polyteehnie in 1831, and was subsequently employed for some time as an engineer in connection with the tobacco board. In 1836 he published *Mémoires sur les Combinations du Phosphore avec l'Hydrogène et avec Oxygène.* His *Tables de Mercure,* and several memoirs on "the seeular inequalities," opened to him the door of the academy in 1846; and at the instigation of Arago he applied himself to the examination of the disturbanees in the motions of the planets, from which the existenee of an undiscovered planet could be inferred; and, as the result of his laborious calculations, direeted the attention of astronomers to the point in the heavens where, a few days afterwards, the planet Neptune was aetually diseovered, the same thing being also, by a remarkable coincidence, done about the same time, and independently, by the English astronomer Adams (q.v.). For this Leverrier was rewarded with the grand cross of the legion of honor, a professorship of astronomy in the faculty of seiences at Paris, and various minor honors. When the revolution of 1848 broke out, Leverrier sought distinction as a democratic politieian; the department of La Manehe chose him in May, 1849, to be a member of the legislative assembly, where he at once beeame counter-revolutionary; and in 1852 Louis Napoleon made him a senator. In 1854 Leverrier was appointed to the directorship of the observatory of Paris, an office which, save during an interval of three years (1870–73), he held till his death, Sept. 23, 1877.

LE VERT, Octavia Walton, 1810–77; b. near Augusta, Ga. Her grandfather, George Walton, was a signer of the declaration of independenec, and her father, who

bore the same name, was territorial secretary, and for a time acting governor of the territory of Florida. His daughter was with him at Pensacola, where she received her education, and where as a young lady she was a great favorite in society. She was invited to select a name for the capital of Florida, and chose the Indian name Tallahassee. Her father, at the close of his official term, removed to Mobile, where in 1836 she was married to Dr. H. S. Le Vert. Before this, however, she passed one or two winters in Washington, where she enjoyed the friendship of Webster, Clay, Calhoun, and other eminent men of that time, and won distinction by the accuracy of her reports of certain debates in congress. After 1853 she spent two years in Europe, and was received into the best society in England and on the continent. She subsequently gave an account of her observations in 2 vols. entitled *Souvenirs of Travel.* She did much to promote the objects of the Mount Vernon association, and for the comfort of the confederate soldiers during the war of the rebellion. It is understood that she left in manuscript *Souvenirs of Distinguished People* and *Souvenirs of the War*, but they have not been published. Died in New York.

LEVI, the third son of Jacob and Leah (Gen. xxix. 34). He is conspicuous through the part he took with his brother Simeon in the slaughter of the inhabitants of Shechem, together with Hamor and Shechem, their princes, while in a defenseless state, in order to avenge the wrong inflicted by the latter on Dinah (Gen. xxxiv.). Jacob, even on his death-bed, could not forgive this their bloody "anger and self-will," and pronounced this curse on them both, that they should be scattered among Israel (Gen. xlix. 7). How this was fulfilled in the case of Levi, whose descendants, singled out for the service of the sanctuary and the general instruction of the people, had to reside in cities set aside for them throughout the length and the breadth of the land, will be more fully shown under LEVITES. In Egypt the house of Levi had divided itself into three families, those of Gershon, Kohath, and Merari.

LEVI, LEONE, PH.D., b. Ancona, Italy, of Jewish parentage. In 1844 he removed to Liverpool, where he was naturalized as a British citizen. He was one of the founders of the Liverpool chamber of commerce in 1849, and in 1852 was appointed professor of commercial law in university college, London. In 1859 he became a barrister, and in 1861 received the doctorate from Tübingen. He has published many valuable papers upon statistical and commercial affairs, and is author of *Commercial Law* (4 vols.), *On Taxation*, and *International and Commercial Law.*

LEVI'ATHAN, a scriptural term for a great "sea-monster," but more especially a crocodile (q.v.). In the Prophets and Psalms it is occasionally used as a symbol of Egypt and Pharaoh. Many wondrous allegorical tales are connected with this word in the Talmud and Midrash.

LEV'ICO, a t. of the Tyrol, Austrian empire, 9 m. s.e. by e. from Trient (*Trent*), in the upper part of the valley of the Brenta, and near the small lake of Levico, where that river rises. Mulberry trees are cultivated, and the care of the silk-worm and spinning of silk employ many of the people. Pop. '80, 4,530.

LEVIGATION, a process of the laboratory for converting different substances to a smooth, uniform powder by grinding them between two flat surfaces. The same process essentially is used in grinding paints, printing-inks, and drugs.

LEV'IRATE MARRIAGE (Lat. *levir*, a husband's brother) is the marriage of a man to the widow of his deceased brother. This was an ancient usage of the Hebrews when an Israelite died without male issue, and his widow could compel his next older brother to marry her. This law was afterwards enacted in the Mosaic code, though definite limits were prescribed for it, and some of the irksome and odious features which it had in ancient times were removed. This law was not peculiar to the Hebrews, but prevailed among the Moabites, Persians, and inhabitants of India, and still exists in Arabia, Abyssinia, and other nations.

LEVIS, a co. in central Quebec, Canada, having the St. Lawrence river for its n. and n.w. boundary, and on the n.e. the straits that separate it from the isle of Orleans; about 256 sq.m.; pop. '81, 27,980. It is drained by the Chaudiere and Etchemin rivers, intersecting it centrally. It contains the town of Levis, in the n., opposite the city of Quebec, and communicating with it by a ferry, being a port of entry, and the landing-place for passengers by European steamers. It is intersected by the Grand Trunk railway and the Levis and Kennebec railway. Its surface is varied by the picturesque islands which interrupt its river courses, and their precipitous and densely wooded banks. It contains several towns of considerable commercial activity, where capital is employed in saw and grist mills, axe factories, tanneries, and an extensive lumber trade. Seat of justice, Levis.

LEVIS, or POINT LÉVI, a t. in central Quebec, Canada, opposite the city of Quebec, on the river St. Lawrence, 172 m. n.e. of Montreal, on the s. shore of the river; pop. 7,597. It contains the wharves where passengers from the ocean steamships are landed, and is protected by substantial fortifications. It is connected by a ferry with the city of Quebec, a mile distant, and is about 4 m. from the isle of Orleans, a large island dividing the river St. Lawrence at that point. It is engaged in a brisk trade,

has several saw-mills and factories, a good hotel, a convent, a board of trade, and 2 telegraph offices.

LEVITA, Elijah (*Halevi, Ben Asher; Ashkenasi* = the German, *Habachur* = the master, *Hamedakdek* = the grammarian), a Jewish grammarian and exegete, who, though much overrated, still holds a high rank among Hebrew scholars, was b. at Neustadt, on the Aisch, near Nuremberg, in 1470. One of the then frequent expulsions of the Jews forced him to seek refuge in Italy, where he held a high position as teacher of Hebrew, first in Venice, next in Padua, finally in Rome (1514). Cardinal Egidio here became his patron and pupil, but even he could not prevent Levita's again being expelled this city, together with his Jewish brethren, in 1527. He then returned to Venice, where he lived for the most part until his death, 1549. His principal exegetical and biblical works are a *Commentary on Job in Verse*, a *German Translation of the Psalms*, an *Edition of the Psalms with Kimchi's Commentary*, an *Edition of the Targum to Proverbs*, and of *Kimchi's Commentary to Amos*. His grammatical works are chiefly *Masoreth Hammesoreth* (Tradition of Traditions), a treatise on the vowel-points, etc., in the Old Testament; *Tub Taam* (Good Judgment), a treatise on accents; *Sefer Habachur* or *Dikduk* (Grammar), besides many minor treatises. In the field of lexicography he has contributed *Meturgeman* (= Dragoman), an attempt at a Talmudical and Targumical dictionary; *Tishbi*, a complement to Hebrew dictionaries; *Shemoth Debarim* (The Names of Things), a Hebrew-German dictionary; *Nimukim*, glosses to David Kimchi's *Book of Hebrew Roots*, etc. Most of Levita's works have been repeatedly edited and partly translated by Buxtorf, Münster, Fagius, and others, who owed most of their Hebrew knowledge to Levita exclusively—a fact not generally recognized.

LEVITES, the descendants of Levi (q.v.), who were singled out for the service of the sanctuary. The term is more particularly employed in contradistinction to priests (q.v.), in designating all those members of the tribe who were not of the family of Aaron. It was their office—for which no further ordination was required in the case of the individual—to erect, to remove, and to carry the tabernacle and its utensils during the sojourn of the Israelites in the wilderness. When the sanctuary had found a fixed abode, they acted as its servants and guardians, and had to assist the priests in their holy functions in the sanctuary and in their medical capacity among the people. The vocal and instrumental music in the temple was likewise under their care, as were also the general instruction of the people, certain judicial and administrative functions, the keeping of the genealogical lists, and the propagation of the Book of the Law among the community. In order to enable them better to fulfill these functions, no special part of the land was allotted to them, but they were scattered—in accordance with Jacob's last words (Gen. xlix. 7)—in Israel; 48 Levitical cities, among which there were also certain "cities of refuge," being set aside for them on both sides of the Jordan; without, however, preventing their settling wherever else they pleased. Their revenues consisted of the annual tithe (q.v.), and of a share in the second tithe, due every third year, and in the sacrificial repasts. The length of their service varied at different times. No special dress was prescribed for them until the time of Agrippa.

While in the desert not more than 8,580 serviceable men strong, they had, under David, reached the number of 38,000 men fit for the service, 24,000 of whom this king selected, and divided them into four classes—sacerdotal assistants, doorkeepers, singers and musicians, and judges and officers. A very small number only returned from the exile, and all the Mosaic ordinances with respect to their cities, tithes, share in sacrificial repasts, etc., were virtually abrogated during the second temple. Nothing but the service in the temple, in which they were assisted by certain menials called *Nethinim*, was left to them. It may be presumed that they earned their livelihood partly like the rest of the community, partly as teachers, scribes, and the like. Their traveling-garb consisted, according to the Talmud (Jebam., 122 *a*), of a staff, a pouch, and a Book of the Law. Foreign rulers also granted them exemption from taxes. This is the only tribe which is supposed to have kept up its pure lineage to this day, and certain, albeit small, signs of distinction are still bestowed upon its members, more especially in the case of the presumed descendants of Aaron (the *Kohanim*). But the purity of lineage is more than questionable in many instances.—Levites is also the name given to certain sacerdotal assistants in the Romish church.

LEVITICUS (Heb. *Vajikra*) is the name of the third book of the Pentateuch, containing chiefly the laws and ordinances relating to the Levites and priests. Little or no progress is made in it with respect to the history of the people, and the few events recorded are closely connected with the special aim and purport of the book. The erection of the sanctuary having been described at the end of Exodus, the nature of the worship—revealed by God within this tabernacle—is set forth in Leviticus, which forms its continuation. The order followed is not strictly systematical, but a certain plan is apparent, in its outlines at least.

The age and authorship of Leviticus will be considered, together with that of the other "Mosaic" records, under Pentateuch. We shall confine ourselves to mentioning, in this place, that the whole of the supposed "original" or Elohistic document (see Genesis) is by modern critics held to be embodied, in its primitiue shape, as nearly as possible at least, in the "Leviticus" as we have it now. Among the few additions and

alterations ascribed to the Jehovist are reckoned chapters x. 16–20, xx. 20–26, xxv. 18–22, and the greater part of chap. xxvi. (3–35), the second verse of which (end of *Parashah* xxxii.) is held to have concluded the Sinaitic legislation in the original document.

LEVITICUS (*ante*), the name taken from the Septuagint of the third book of Moses, and signifying "belonging to Levi," well represents its contents, which are precepts and ordinances for the government of the priests, Levites, and people in their special relations to God. The Hebrew title, which is simply the first word of the book, "And he called," also points it out as a collection of divine commands. These commandments, as recorded in this book, have reference to sin as committed by men; to the sacrifices which the people should bring as an atonement; and to the priests who should offer them in the people's name. The first great fact to be perceived, in order to a right understanding of the book, is that it exhibits divinely appointed emblems of divine realities. All that it records, the tabernacle, the priest, the altar, the sacrifice, the incense, are emblems employed by him who gave signs to his servants, the prophets, and in his own teachings used similitudes. This being kept in mind, the book may be regarded as presenting three principal topics: I. The Priests.—They were at once the representatives of the people in their relations to God, and of God in his relations to them. Every man in the nation was vitally interested in the duties and burdens of the office, and might justly have been required to bear his portion of them; and in regard also to its honors, all the people were a kingdom of priests. At the beginning of their history the first-born sons of all the families, in all the tribes, were to be consecrated to the Lord as representatives of the whole. Afterwards, as an equivalent for them, the tribe of Levi was set apart to the service. Of these the sons of Aaron were to be priests, and Aaron was to be the high-priest. The whole tribe was considered as performing one service, the magnitude and importance of which were represented both by the great number consecrated and employed and by the dignity of the high-priest. All the service performed by them all was crowned with his work, and the splendor vested in him irradiated them all. The high-priest was anointed with holy oil, compounded of the most precious materials and devoted strictly to that use alone. By this, poured on him and running down to the skirts of his garments, he was consecrated to the Lord. He was clothed sometimes in splendid robes composed of blue, purple, scarlet, fine linen, and gold, elaborately wrought together, with a breast-plate of precious stones, and a miter on which blazed the inscription, formed of dazzling gems, "Holiness to the Lord." This represented the majesty of God. At other times he was required to minister in plain linen garments, which were emblematic of the humility appropriate for men in their approaches to God. Bodily perfection and personal purification were required in the priesthood as emblems of the holiness necessary for all men in approaching to God. The priestly office was, according to divine command, to be transmitted from father to son, and the oldest son of the high-priest was to be his successor. By this arrangement, while the individual priest could not continue by reason of death, the office was made perpetual. II. The Sacrifices.—1. Sacrifices for the priests themselves were to be offered before they could officiate for the people. These were required specially at their consecration, and generally before they made atonement for the people. Thus their own sinfulness was acknowledged and atoned for separately, in order that, although compassed with infirmities, they might be accounted worthy to stand emblematically between God and the people. 2. No sacrifice could be accepted unless accompanied with the shedding of blood. That represented *the life*, and therefore the blood of animals was consecrated as an emblem of atonement for sin, and was to be applied to all things connected with the offering of worship. 3. The animals offered were to be taken from those most valued, and must be without imperfection or blemish. And to their life many other choice things were to be added—such as fine flour, pure oil, and frankincense—in order to increase the costliness and therefore the emblematic significance of the offering. 4. The sacrifices were to be numerous and perpetual. Every man was required to present offerings for himself whenever he sinned against God, or trespassed against his fellow-men; and for sins of ignorance, as well as for willful transgressions. After the settlement in Canaan, wherever a man lived, he was required to present his offering at the tabernacle or temple. These personal sacrifices were burdensome, and would frequently recur. Besides these, a general daily morning and evening sacrifice was ordained; and on the Sabbath days this was doubled. On feast days, additional offerings were prescribed. One day in every year was consecrated with special solemnity as a day of atonement, in which all the people were required to abstain from servile labor, and to afflict their souls, under penalty of being cut off from the congregation. On that day the high-priest alone of all the priests and people, and he on that day only in all the year, was to enter the most holy place, taking with him blood, which he must sprinkle seven times before the mercy-seat. On that day the sin-offering consisted of two animals, one of which was sacrificed on the altar, while on the head of the other the high-priest laid both his hands, and confessed over it all the iniquities of the people and all their transgressions, putting them on its head, and sending it away into the wilderness. These solemn rites may be regarded as the closing sacrifice of the year, binding all together as one great offering, crowning them and imparting to them the highest measure of emblematic significance. All these were appointed to

be repeated year by year, through all generations, until the ordained end. III. The Sins of the People.—1. Their punishment. There were flagrant crimes for which no sacrifice would avail. He who committed them was to be cut off from his people. There were also sins against the sacrifice itself for which, in the nature of the case, no atonement could be made. National judgments were threatened against the general violation of the law by the people at large. For first offenses, disease, famine, and war, in lighter measures, were denounced. If, notwithstanding these visitations, the people persisted in their offenses, sevenfold judgments would be sent. God would break the pride of power and make the heavens as iron and the land as brass. If then they refused to obey, wild beasts would be sent to destroy their children and cattle. If they were not reformed by these inflictions, the horrors of siege and of pestilence would be superadded. If still they were not subdued, their sanctuaries would be desolated, their cities laid waste, their land destroyed, and they themselves scattered among the nations. By these threatened judgments the evil nature of sin was powerfully pressed on their consciences and thoughts. 2. It was also emblematically set forth in the daily actions and circumstances of their lives. Of these, two may be specified: (1.) The distinction made between clean and unclean meat. All animals were divided into these two classes; the former of which only might be eaten, while the latter were to be an abomination in the sight of the people. While there may have been several reasons for this regulation, one object of it was to hold up the moral distinction between good and evil, holiness and sin, by reminding the people continually that in partaking of food they might do right or do wrong; and if in this constantly recurring act, so in all other actions of their lives. (2.) The disease of leprosy was an emblem of the awful nature and consequences of sin. As the disease was seated in the body, so sin is in the soul; as the disease might be transmitted by hereditary descent, so the sinfulness of mankind is continued from age to age; as leprosy was often manifested at first only by a single spot which spread over the body, so sinfulness of heart, often betraying itself at first only by slight outward transgressions, may increase in power until the whole character is defiled. Leprosy sometimes entered into a garment or a house; then the garment must be burned, and the house destroyed. So, by the sinfulness of men, a land being defiled, may be doomed to destruction, as Sodom and Gomorrah were destroyed. Yet as to Israel, their land was not to be forever desolate, nor were they to be utterly and finally cast off.

LEV'ULOSE, a variety of glucose, differing from ordinary glucose or dextrose by the property of turning the plane of polarization of light to the left (whence its name) instead of to the right, as in dextrose. A mixture of these two sugars constitutes *fruit sugar* or, as sometimes called, *invert sugar*, which also possesses left-hand rotation, because of the excess of left-handed power of the levulose constituent. Cane sugar may be inverted or transformed into a mixture of dextrose and levulose by warming it with dilute acids, or by the addition of yeast or diastase. To separate the levulose the fruit sugar is mixed with slaked lime and water. A solid compound of levulose and calcium is formed, the dextrose remaining in solution, allowing the precipitate to be removed, which, when suspended in water, may be decomposed by carbolic acid gas, by which means pure levulose is separated, carbonate of lime being formed as an insoluble precipitate. The solution containing the levulose may be concentrated by evaporation. Levulose is formed also by the action of dilute acids on inulin. It is a colorless, uncrystallizable syrup, having the sweetness of cane sugar, and exhibiting most of the reactions of dextrose, but is more soluble in alcohol. Its rotatory power at ordinary temperatures is much greater than that of dextrose, but diminishes as the temperature rises, while the rotatory power of dextrose is the same at all temperatures. See Glucose.

LEVY (Fr. *levée*) is the compulsory raising of a body of troops from any specified class in the community for purposes of general defense or offense. When a country is in danger of instant invasion, a *levée en masse* is sometimes made—i.e., every man capable of bearing arms is required to contribute in person towards the common defense. On less urgent occasions, the levy may be restricted to a class, as to men between 18 and 40 years of age. At other times, a levy of so many thousand men of a certain age is decreed, and the districts concerned draw them by lot from among their eligible male population. In armies sustained by volunteering, the levy, which is a remnant of barbarous times, is unnecessary; but the system was frequently resorted to in France before the enactment of the conscription laws: 1862 has shown great levies in the United States of America; and in any country where great danger is apparent, and volunteers are not sufficiently numerous, recourse must at all times be had to a levy of the people.

LEVY, in law, the seizure of real or personal property by a sheriff in order to satisfy an execution against it. Real estate may be levied upon by setting forth by metes and bounds the portion seized; personal property must be brought into the actual possession or under the power of the sheriff.

LÉVY, a co. in w. Florida, on the gulf of Mexico, bounded n.w. by the Suwanee river; about 1000 sq.m.; pop. '80, 5,767—5,631 of American birth, 2,035 colored. Its southern portion is drained by the Withlacoochee river, forming its southern boundary and emptying into the gulf of Mexico. Its surface is generally level, consisting of exten-

sive swamps and large tracts of tillable lands covered with pine and cedar forests, and bearing the name of the *Gulf Hammock*. The portion under cultivation has a sandy soil, and among its staple products are oats, corn, tobacco, cotton, wool, sweet potatoes, and sugar cane. In 1880 it had 27 manufacturing establishments, employing 139 hands, with a capital of $99,400 and an annual product of $170,650. It has grist-mills, and mills for the manufacture of pine lumber, cedar pencils, and cotton-gins. It is traversed by the Florida railroad, having a terminus at Cedar Keys, and its coast is indented by Wacasassee bay and Cedar Key bay. Seat of justice, Bronson.

LÉVY, ÉMILE, b. France, 1826; pupil of the *ecole de beaux arts* of Paris, in which he obtained the grand Roman prize in 1854. His painting of "Noah cursing Canaan," exhibited at the Paris exposition in 1855, was purchased by the government. Levy's most notable works since are "Répas de Martyrs," "Ruth et Naémi," "la Rentré des foins," "Vercingétorix se rendant au César," "la Messe au Champs," "Venus ceignant sa ceinture," "Diane la Mort d'Orphée," "l'Arc-en-ciel," "l'Hesitation," "le Christ au tombeau." In 1867 M. Levy received the medal of the exposition and the cross of the legion d' honneur.

LEWES, the county-t. of Sussex, market-t., and parliamentary borough of England, most picturesquely situated on the navigable river Ouse, 50 m. s. from London, and 7 from Newhaven, which is its port. Pop. '81, 11,199. Lewes is the seat of the assizes. It returns one member to parliament, and is the seat of election for East Sussex. Fairs are held here on Whit-Tuesday and May 6 for horses; on July 20, for wool; and on Sept. 21 and 28, for Southdown sheep, of which from 40,000 to 50,000 are often collected. The chief trade is in grain, sheep, and cattle. There are three iron foundries; and ship-building, brewing, tanning, rope-making, and lime-burning employ many of the inhabitants. Races are held here annually in July or Aug., near Mount Harry, on the Downs, where the celebrated battle of Lewes was fought, between Henry III. and the insurgent barons of the kingdom, on May 14, 1264. The castle, the principal tower of which now forms the museum of the Sussex archæological society, was long the seat of William de Warrenne, whose remains and those of his wife, Gundrada, daughter of the conqueror, were discovered here. Lewes is of very remote origin, and was the site of a Roman station or camp. Three papers are here published, and the town is governed by two high-constables.

LEWES, GEORGE HENRY, a versatile and influential English author, was b. at Griff, Warwickshire, April 18, 1817, educated at various schools, studied medicine for some time, and finally resolved to devote himself to authorship. In his twenty-first year, he proceeded to Germany, where he remained for two years, studying the life, language, and literature of that country. On his return to England, he took up his residence in London, and has ever since been one of the most industrious as well as successful of *littérateurs*. An intellect clear and sharp, if not remarkably strong; a wit lively and piquant, if not very rich; sympathies warm, if not wide; and a style as firm as it is graceful, have made Lewes one of the best of critics and biographers. He has contributed to most of the quarterlies and magazines of the day; edited (with admirable talent) the *Leader* newspaper from 1849 to 1854; composed novels, comedies, and tragedies; and, of late years, has turned his active mind to the study of physiology and cognate branches of science, in which he has won as high a reputation as in the lighter departments of literature. His principal works are his *Biographical History of Philosophy* (1845, a new edition of which, much enlarged, was afterwards published); *The Spanish Drama, Lope de Vega and Calderon* (1846); *Comte's Philosophy of the Sciences* (forming one of the volumes in Bohn's *Scientific Library*, 1853), a work which is not a mere translation of the French savant, but in several parts a complete remodeling, by which the style does not suffer; *Life and Works of Goethe*, etc. (1855); *Seaside Studies at Ilfracombe* (1858); *Physiology of Common Life* (1860); *Problems of Life and Mind* (1873–74); *On Actors and the Art of Acting* (1875); and *The Physical Basis of Mind* (1877). In 1865 Lewes founded the *Fortnightly Review*, and for a time was its editor. He died Nov. 30, 1878.

LEWIN, THOMAS, b. at Ifield, Sussex, England; educated at Trinity college, Oxford; admitted to the bar in 1833, and in 1853 became conveyancing counsel to the court of chancery. He wrote a treatise on *The Law of Trusts*, but most of his works are of a religious character. Among them are *The Life and Epistles of St. Paul;* an *Essay on the Chronology of the New Testament; Jerusalem, a Sketch of the City and Temple from the Earliest Times to the Siege by Titus; Siege of Jerusalem by Titus;* and *Fasti Sacra, or a Key to the Chronology of the New Testament*. His work on *Cæsar's Invasion of Britain*, in which he questioned the correctness of the current belief as to the landing-place of that conqueror, involved him in a controversy with Dr. Airy, the astronomer royal, and led to new investigations. After the publication of his work on St. Paul, he devoted many years to a study of the apostle's missionary journeys, visiting in person nearly every place named in the accounts given in the New Testament of his journeyings. The results of these later researches are embodied in a second edition of his previous work, in two large volumes, profusely illustrated. His views as to the sacred localities of Jerusalem, especially in respect to the site of the temple, which differ from those of Robinson and others and have led to much controversy, have not been generally accepted.

LEWIS, or SNAKE RIVER, the great southern branch of Columbia river, United States of America, rises in the Rocky mountains, on the western borders of Nebraska territory, and after a circuitous course, the general direction is n.w. through Oregon territory, it joins the Columbia, near fort Walla-Walla, lat. 46° 6′ n., long. 118° 40′ w Length, 900 miles.

LEWIS, a co. in n.e. Kentucky, having the Ohio river for its n. boundary, separating it from the state of Ohio, and the North fork of the Licking river for its s.w. boundary; drained by the branches of the Ohio, flowing from all portions of the county; about 430 sq.m.; pop. '80, 13,154—12,984 of American birth, 229 colored. It is largely covered with forests on a hilly surface with a limestone formation. Its soil is fertile along the water-courses, and is adapted to the raising of live stock, every variety of grain, fruit, dairy products, tobacco, wool, sweet potatoes, wine, and honey; other products are maple sugar, flax, and hops. Its capital is represented by tanneries, currying establishments, lumber, flour and saw mills, boat-yards, and manufactories of hubs and spokes. It had, in '80, 68 manufacturing establishments, employing 128 hands, with a capital of $127,905, and an annual product of $667,368. Seat of justice, Vanceburg.

LEWIS, a co. in n.e. Missouri, having the Mississippi river for its e. boundary, separating it from Illinois; 500 sq. m.; pop. '80, 15,925—15,080 of American birth, 1,405 colored. It is drained by the Wyaconda river, flowing s.e., and the North and Middle branches of the Fabius river, flowing from n.w. to s.e. across the county, emptying into the Fabius and thence into the Mississippi. It is intersected by a branch of the Quincy, Missouri and Pacific railroad, from Quincy to Kirksville, in the s.w. section; and the St. Louis, Keokuk and Northwestern railroad, following the course of the Mississippi river. Its surface is well timbered and undulating. Its soil is a deep rich loam, fertile to a remarkable degree, and adapted to the raising of live stock, fruit, every variety of grain, tobacco, wool, sweet potatoes, and sorghum. Value of all live stock in '80 $1,009,634. Cash value of farms in '80, $4,427,914. It produced in '70, 1,206 galls. of wine, and 16,707 lbs. of honey. Number of farms in '80, 2,003. It had in '80, 83 manufacturing establishments, employing 201 hands, with a capital of $131,500, and an annual product of $360,125. Its leading industries are in the manufacture of lumber, carriages, cooperage, saddlery and harness, tin, copper, and sheet-iron ware, and snuff. It has flour and saw mills and tobacco factories. Coal is found and limestone in great abundance.

LEWIS, a co. in n. New York, intersected by the Black river and its branches, among them the Beaver river, rising in a small lake on its eastern border, the Moose, and the Oswegatchie: 1,280 sq. m.; pop. '80, 31,356. Its surface is hilly, rising in some portions to the height of 1,400 ft., and in the w., that being the most productive region, to an elevation of 1,500 and 1,700 feet. It is well wooded with groves of sugar-maple and hard-wood trees, particularly in the eastern portion. It has excellent pasturage, and its soil along the river bed, having a sub-stratum of limestone, is very fertile, and adapted to the raising of live stock, every variety of grain, tobacco, wool, maple sugar, flax, and hops. Value of live stock in '80, $1,803,505. It produced in '70, 2,080,259 lbs. of butter and 7,331 lbs. of honey. It had in '80, 328 manufacturing establishments, employing 1,472 hands, with a capital of $1,797,365 and an annual product of $3,193,655. Its leading industries are lumber, leather, cooperage, carriages, paper and wooden wares, woolen goods, pig iron, and tin, copper, and sheet-iron ware. Seat of justice, Lowville.

LEWIS, a co. in central Tennessee, having the Buffalo creek for its s. boundary, and the Duck river crossing its extreme n.e. corner; about 350 sq. m.; pop. '80, 2,181—2,179 of American birth, 218 colored. Its surface is diversified, sparsely settled, and is divided into hill, valley, and woodland, the latter predominating. Live stock is produced, peanuts, and every variety of grain. Seat of justice, Newburg.

LEWIS, a co. in s.w. Washington territory, drained by the Cowlitz river, flowing w. and s.w., having the Chehalis river for its n.e. boundary, running n.w. and emptying into the Pacific; and part of the Cascade range of mountains for its e. border; 1,700 sq. m.; pop. '80, 2,600—2,236 of American birth. It is thinly populated, and its surface is extensively covered with timber. The soil of its valleys is very fertile, and adapted to the raising of live stock, wool, dairy products, and every variety of grain. Its rivers are navigable, and it is intersected by a branch of the Northern Pacific railroad, which crosses it centrally, running from Olympia in a northern county to Kalama in the county directly s. of it. Its water-power is utilized by flour and lumber mills. Seat of justice, Claquato. Pop. '84, 45,000; assessed value of property, $1,514,280.

LEWIS, a co. in n. West Virginia, intersected centrally by the West fork of the Monongahela river running northward; drained also by the Little Kanawha river; about 475 sq. m.; pop. '80, 13,270—12,806 of American birth, 326 colored. It presents an uneven surface, alternate hill and valley, tillable lands, and extensive forests. It contains beds of iron and bituminous coal easily mined. Its soil is adapted to the raising of live stock, fruit, buckwheat, oats, corn, rye, wheat, tobacco, wool, sweet potatoes, and dairy products; also maple sugar, sorghum, and flax. It has woolen factories, and

saw and planing mills. Cash value of farms in '80, $4,391,619, numbering 1,004. Seat of justice, Weston.

LEWIS, or LEWISSON, a device for securing heavy bloeks of stone to the tackle for hoisting. It is supposed to be named from Louis XIV. of Franee, but there is evidenee that it was used long before his time. In the stone is a quadrangular eavity, widened at the bottom on two opposite sides as in dovetailing. Into this cavity are thrust two wedge-shaped pieces of iron, heads downward, and then a third piece, perfectly straight, is inserted between them to hold them in plaee. The ends projecting above the stone present each an eye for a bolt, which passes through the whole and forms a handle for lifting the stone. After the stone is raised to its place, the bolt is first taken out; then the center-piece, whieh has held the wedge-shaped outer pieees firmly in plaee, is withdrawn, setting the latter free.

LEWIS, ANDREW, 1730–80; b. in Ulster co., Ireland; while an infant was brought by his father to Bellefonte, Augusta eo., Va. In the old Freneh war he was a volunteer in the Ohio campaign in 1754, a maj. in Braddock's expedition, and present at the great defeat on the Monongahela in 1755. He commanded the Sandy Creek expedition in 1756, and in 1758 was taken prisoner by the French and carried to Montreal. Ten years later he served as commissioner of Virginia in the treaty made with the Iroquois at fort Stanwix. In 1774 he was raised to the rank of brig.gen., and in the same year commanded the Virginia troops in the vietory over the Shawnee confederaey at the mouth of the Kanawha river. He was a member for several years of the Virginia house of burgesses, and in 1776, at the request of Washington, was appointed by congress a brig.gen., and took part in the military operations against lord Dunmore. Ill health eompelled him to resign his commission in 1777, and he died in Bedford co., Va. He was very highly esteemed by Washington, and his statue oeeupies one of the pedestals around the Washington monument at Richmond. He had four brothers, Samuel, Thomas, William, and Charles, seareely less prominent than himself in the annals of Virginia.

LEWIS, CHARLES, b. Va. and killed at the battle of Point Pleasant, Oct. 10, 1774. Under his brother Andrew he served with distinction and became a col.

LEWIS, DIO, b. N. Y., 1823; studied at the Harvard medieal school in Boston, and practiced for a time successively at Port Byron and Buffalo, N. Y. At the latter place he published a monthly periodical, in which he advanced the idea that diet and exercise should take the place of drugs in the treatment of disease. As a means of preserving health and removing disease he introduced the system of light gymnastics for the use of schools and private elasses, and in 1863 founded in Boston a school for training teachers of this system. Afterwards he established at Lexington, Mass., a seminary for young ladies, in which he sought to earry out his ideas of diet, air, and exercise. The building used for this school was destroyed by fire in 1868, and Dr. Lewis thereupon engaged in medical practiee in Boston. He removed to New York eity about 1883, and engages in authorship and in farming near the city. His principal publications are: *The New Gymnastics; Weak Lungs and How to Make Them Strong; Talks about People's Stomachs; Our Girls; Chats with Young Women; Our Digestion; Dio Lewis's Monthly.*

LEWIS, EDMONIA. See page 898.

LEWIS, ELLIS, LL.D., 1793–1871; b. Penn.; learned the trade of a printer in his youth, and in 1822 was admitted to the bar. In 1824 he was deputy attorney-general of Pennsylvania, attorney-general in 1832, and subsequently a judge in several courts. In 1854 he was eleeted chief-justice of the supreme court, and re-elected in 1857. He was distinguished for his skill in medieal jurisprudence, whieh won for him the degree of M.D. In 1858 he was appointed commissioner to revise the criminal code of the state. He wrote *Abridgment of the Criminal Law of the United States.* Died in Philadelphia.

LEWIS, ESTELLE ANNA BLANCHE, b. near Baltimore, 1824; edueated at Miss Willard's seminary in Troy, N. Y.; married in 1841 Sidney Lewis of Brooklyn, N. Y., who is now deceased. Mrs. L. lived most of her time in Europe after the death of her husband. Among her publieations are: *The Record of the Heart; The Child of the Sea; The Myths of the Minstrel;* and *Helenah* (a tragedy). A collection of her poems was published in this country in 1858, and in England in 1866. After that time Mrs. L. published *Sapho of Lesbos; The King's Stratagem* (both tragedies); and letters from Europe signed *Stella.* She d. in London, 1880.

LEWIS, FRANCIS, 1713–1803; b. Llandaff, Wales, and educated at Westminster. He came to Ameriea, settling in New York, where he was a merchant. In 1757 he was on the staff of gen. Mereer in the old Freneh war, and being taken prisoner at Oswego was sent to Franee. England, in consideration of his services, gave him 5,000 aeres of land. He was one of the signers of the declaration of independence, and, 1775–79, a member of congress. He and his wife were imprisoned by the enemy for a long time, and the greater portion of his estate was sacrificed. Died in New York.

LEWIS, IDA (Mrs. IDA LEWIS WILSON). See page 898.

LEWIS, Right Hon. Sir GEORGE CORNEWALL, Bart., English statesman and author, was b. in London, 1806. He was eldest son of sir Thomas Frankland Lewis, first baronet of Harpton Court, Radnorshire, who, after a long official career, was chairman of the poor-law board from 1834 to 1839. Lewis was educated at Eton and Christ church, Oxford, where in 1828 he was first-elass in classics and second-class in mathe-

matics. He was called to the bar of the middle temple in 1831, and after acting on various commissions of inquiry, succeeded his father as poor-law commissioner in 1839, and remained at the poor-law board until it was broken up and reconstituted in 1847. He had meanwhile married lady Maria Theresa, sister to the fourth earl of Clarendon, and a connection by marriage of earl Russell. Having determined to adopt a political career, and being thus incorporated into the number of whig official families, his promotion was certain and rapid. He sat for Herefordshire from 1847 to 1852, and became successively secretary to the Indian board of control, under-secretary for the home department, and financial secretary to the treasury. In 1852 he lost his seat in the house of commons, and subsequently accepted the editorship of the *Edinburgh Review*, which he continued to conduct until 1855, when he was elected for the Radnor district of boroughs. He had scarcely taken his seat when lord Palmerston offered him the chancellorship of the exchequer in his first administration, which he held from Mar., 1855, to the dissolution of the government in Feb., 1858. On the return of lord Palmerston to power, in June, 1859, Lewis accepted the post of secretary of state for the home department, which, to the surprise of the nation, he exchanged, in 1861, on the death of lord Herbert, for the office of secretary of state for war. In the same year, he published a work of much research, entitled the *Astronomy of the Ancients*. This unremitting labor weakened his frame, and a cold caught while he was enjoying the Easter holidays at his family seat, was followed by congestion of the lungs, which proved fatal, April 13, 1863. Lewis was an able, earnest, and sincere politician. As an orator, he could scarcely be said to express himself with eloquence or vivacity; yet his sound sense, varied knowledge, and moral and intellectual qualities, made him one of the chief ornaments of public and political life in England. His *Inquiry into the Credibility of Early Roman History* is conducted on the critical principles of Niebuhr, but is more rigorous and skeptical in spirit than the work of the great German historian. The treasures of varied knowledge and wisdom which he had collected during his comparatively short life may be gathered from a list of his works, which include a treatise on the *Origin and Formation of the Romance Language; The Fables of Babrius; The Use and Abuse of Political Terms; The Influence of Authority in Matters of Opinion; The Method of Observation and Reasoning in Politics; Local Disturbances and the Irish Church Question; The Government of Dependencies; A Glossary of Provincial Words used in Herefordshire;* and the *Astronomy of the Ancients*. His latest work was a *Dialogue on the Best Form of Government*, which was published a few days before his death.

LEWIS, John Frederick, b. London, 1805; became known at first by a series of studies from wild animals which were engraved by himself, and next by sketches of manners in Spain, published in 2 vols. in 1833–34. He resided most of the time in Italy 1838–51, but made visits to Greece, Turkey, and Egypt. In 1853 he exhibited copies in water-colors of more than 60 of the most famous pictures of the Venetian and Spanish schools. These were purchased by the Scottish academy. He was president of the society of water-colors, 1855–58; in 1859 he was elected an associate, and in 1865 a member, of the royal academy. He d. 1876.

LEWIS, Matthew Gregory, 1775–1818; often called monk Lewis; b. London; educated at Christchurch, Oxford; visited Germany for the purpose of acquiring the language of that country, and by the perusal of the drama and the wild fictions of the Germans, imbibed a taste for the mysterious and tragic. In 1795 he produced his novel the *Monk*, a work full of scenes of blood, cruelty, and impurity. It became very popular, but its licentiousness was so revolting that he was threatened with prosecution, to avert which he agreed to recall the printed copies, and remove the objectionable parts in future editions. He obtained a seat in parliament. In 1796 appeared *Village Virtues, a drama;* in 1797 his *Castle Specter*, which was acted 60 nights. In 1798 he visited Edinburgh, and had an interview with sir Walter Scott, who contributed several fine ballads to the *Tales of Wonder*, published by Lewis in 1801. The death of his father brought him a large fortune consisting of an estate and slaves in the West Indies, which he visited in 1815–16. On his homeward voyage the second time he died of fever. His novels and plays are all characterized by an extravagant taste for deeds of horror and mystery. His poetry, consisting chiefly of songs and ballads, though pronounced deficient in passion and imagery, has a finished and musical flow of versification, and by sir Walter Scott was warmly commended. His best known poems are *Alonzo the Brave; Durandarte; The Fair Imogene*. His novel *The Bravo of Venice* and his drama *Timour the Tartar* were popular. His best prose work is his *West Indian Journal*, written during his first voyage, published in 1833; and his *Life and Correspondence*, in 1839, shows him to have been a kind and benevolent man.

LEWIS, Meriwether, 1774–1809; b. near Charlottesville, Va.; a volunteer at the time of the whisky insurrection of 1794, an ensign in the regular army in 1795, and a capt. in 1800. Shortly afterwards he became Jefferson's private secretary. In 1803–6 he was engaged with capt. William Clarke in an expedition to the Pacific ocean, whose results were important to geographical science; and in 1807 he was made governor of the territory of Louisiana. He was subject to periods of mental depression, in one of which he took his own life near Nashville, Tenn. His memoir by Jefferson was pub-

lished, together with Biddle and Allen's *Narrative of the Lewis and Clarke Expedition*, in 1814.

LEWIS, Morgan, 1754–1844; b. New York city; graduated at Princeton in 1773, and studied law in the office of John Jay. He joined Washington's army at Cambridge in June, 1775, and was successively made capt., maj., col., and chief of staff to gen. Gates. He was in the battle of Saratoga, and in Clinton's campaign against sir John Johnson in the Mohawk valley. After the war he was admitted to the bar in Dutchess co., was appointed judge of the court of common pleas, elected attorney-general in 1791, made judge of the supreme court in 1792, and chief-justice in 1801. He was governor of the state 1805–6, a member of the legislature 1808–11, quartermaster-gen. with the rank of brig.gen. in 1812, maj.gen. in 1813, in which year he was engaged in the operations on the Niagara frontier, and in 1814 had command of the defenses of New York city. He delivered an address before the city authorities on the centenary anniversary of Washington's birth, Feb. 22, 1832, and was subsequently elected president of the New York historical society. Died in New York.

LEWIS, Tayler, ll.d., 1802–77; b. Northumberland, Saratoga co., N. Y.; graduated at Union college in 1820. He studied law in Albany and entered into practice at Fort Miller; but finding the profession distasteful, relinquished it to devote himself to classical studies. He was appointed professor of Greek at the university of New York in 1838, and at Union college in 1849. He was a stout defender of evangelical theology against all its assailants, and especially against the theories and alleged discoveries of modern scientists. He was master of a most clear and vigorous English style, and full of learning and logical power. His mind was of great breadth and originality, and with that felicitous tendency to mysticism which, when restrained, gives depth and grandeur to explorations after truth. He wrote *The Six Days of Creation; The Bible and Science; The Divine Human in the Scriptures;* and, together with E. W. Blyden and Theodore Dwight, *The People of Africa, their Character, Condition, and Future Prospects.* He was a copious contributor upon his favorite themes to the periodical literature of his time. Died at Schenectady.

LEWIS, Thomas, 1718–90; b. Ireland; was a member of the Virginia house of burgesses, and actively favored the rights of the colonies. In the session of 1765 he advocated the resolutions of Patrick Henry, was a member of the conventions of 1775–76, and of the state convention which ratified the federal constitution.

LEWIS, William, 1724–1811; b. Ireland; one of four brothers prominent in the revolutionary history of Virginia. Under his brother Andrew, the most distinguished of the four, he was engaged in the French and Indian wars. He became a colonel.

LEWIS, Winslow, 1799–1875; b. Boston; graduated at Harvard university in 1819; continued his medical studies under Dupuytren at Paris and Abernethy at London. On his return to Boston he succeeded Dr. John C. Warren as consulting physician to the Massachusetts general hospital. In 1861 he was city physician of Boston. He took an interest in public affairs, and was several times chosen to the state legislature.

LEWIS AND CLARKE, a w. central co. of Montana; 2,819 sq.m.; pop. '80, 6,521; has the Missouri river on the e. and the Sun or Medicine river on the north. Within this co. is a part of the Rocky mountain chain, and the surface is generally mountainous, though there are productive valleys. There are gold mines, and the forests yield largely of fir and pine. The Utah and Northern railroad, now constructed to Red Rock, Montana, will probably penetrate this county. Co. seat, Helena.

LEWISBURG, a borough in e. Pennsylvania, on the w. branch of the Susquehanna; pop. '80, 3,080. It is situated on the w. bank of the river, which is here spanned by a bridge, and has a delightful environment, its site being where the Buffalo creek empties into the Susquehanna. It is the terminus of the Lewisburg and Tyrone railroad, in Union co., 63 m. n. of Harrisburg, 14 m. w. of Danville, and 1½ m. from Montandon, connecting at that point with the Philadelphia and Erie railroad. It contains Lewisburg university, a Baptist institution organized in 1847, and the University institute for women. It has a town-hall, 2 weekly newspapers, 2 national banks, and 8 churches. It has manufactories of woolen goods, flour, lumber, and agricultural implements, and 2 foundries. It is the center and shipping point for a large trade in the productions of the neighboring country, which are principally grain and market produce.

LEWISIA, a genus of plants of the natural order *portulacaceæ* (see Purslane), named in honor of the American traveler Lewis. *L. rediviva* is found in the regions of his explorations on the w. side of the Rocky mountains. Its roots are gathered in great quantities by the Indians, and are highly valued as nutritive, and also as restorative, a very small quantity being deemed sufficient to sustain a man throughout a long journey and much fatigue. It is called *tobacco root* because, when cooked, it has a tobacco-like smell.

LEWISTON, a t. of Maine, on the Androscoggin river, 33 m. n. of Portland. The river has here a fall of 50 ft. in 200, and the water-power is distributed by a dam and canal to numerous manufacturing companies, large saw mills, etc. There are several churches, newspapers, schools, and a college. Pop. '70, 13,600.

LEWISTON (*ante*), a t. in s.w. Maine, 30 m. s.w. of Augusta, incorporated 1795; city charter granted, 1861; city government organized, 1863; the terminus of the branch railroad from Crowley's junction to Lewiston, and is on the Maine Central railroad, connecting with the Grand Trunk and the Boston and Maine by way of Auburn and Danville; pop. '80, 19,083. It is in the co. of Androscoggin, and is a manufacturing town of importance. It is connected with the w. bank of the river by four bridges, two of which are of iron for the use of the railroads, and its prosperity, in manufactures and trade, has given it the rank and consequence of the second city of Maine. It contains Bates college, a Free-will Baptist institution organized in 1863, named in honor of Benjamin E. Bates of Boston, who gave it $200,000; a theological school connected with the college, organized 1870; and the Nichols Latin school, named from Lyman Nichols of Boston, connected with the same institution. It has a public library of more than 6,000 volumes, 13 churches, 3 newspapers, including the *Lewiston Evening Journal*, and a monthly magazine, published by the college students, a fine building for city offices, an elegant city hall, excellent public schools, with substantial edifices, a soldiers' monument in the park, and gas-works. It has 2 national banks, one with a capital of $400,000, and 3 savings banks. The construction of the dam cost $1,000,000, the water-power, including the canal, 60 ft. wide, being owned by the Franklin company, incorporated in 1854. It has 18 manufacturing corporations, employing 8,500 hands, with a capital of $9,000,000, and an annual product of $11,000,000. Number of yards of cotton and woolen goods manufactured annually, 40,000,000. Number of spindles, 285,000; other industries are the manufacture of cotton and woolen machinery for factories, brushes, boots and shoes, files, trunks, ticking, burlaps, jute bags, and duck. Its bleaching and dye-works are managed with a capital of $300,000, employing 280 hands. It has many attractions for the tourist in its fine natural scenery.

LEWISTON, a t. in n.w. New York, on the New York Central and Hudson River railroad; the terminus of the Buffalo to Lewiston branch of that railroad, and also of the Oswego to Lewiston branch of the Rome, Watertown and Ogdensburg railroad; pop. '80, 2,768. It is in Niagara co., on Niagara river, 7 m. s. of the falls, the river descending 104 ft. in that distance. It was burned by the British in 1815, and is opposite Queenston, the scene of the battle of Oct. 13, 1812, at which gen. Isaac Brock, a British maj.gen., was killed. It has a Roman Catholic theological school, organized in 1856 and chartered in 1863, called Our Lady of the Angels, and 4 churches. It is situated at the foot of Mountain Ridge, formerly a reservation of the Tuscarora tribe of Indians, who are now numbered among the inhabitants. It is at the head of navigation from lake Ontario, and has a regular daily line of steamers in the summer season to the Canadian city of Toronto.

LEWIS-WITH-HARRIS (the name Lewis is derived from the Norwegian *Ljodhhus*, the sounding house), an island of Scotland, one of the outer Hebrides, the most northern and the largest of the group, lies about 30 m. n.w. from Ross-shire, from which it is separated by the Minch (q.v.). Lewis, the larger and most northerly part of the island, belongs to Ross-shire; the other portion, Harris, belongs to Inverness-shire. Entire length, 60 m.; greatest breadth, 30 miles. Area, 770 sq.m.; pop. '81, 28,339. The coasts are wild and rugged; the chief indentations being Broad bay, lochs Erisort, Seaforth, Resort, and Roag. The butt of Lewis, a promontory at the extreme n., in lat. 58° 31′ n., long. 6° 15′ 30″ w., rises 142 ft. above sea-level. The surface is rugged, with tracts of swamp, a considerable portion is covered with peat, and there are remains of ancient forests. Barley and potatoes are the principal crops raised. Remains of ancient edifices abound on the island. The inhabitants are almost all of Celtic extraction, with the exception of a colony in the n., who, although they speak the Gaelic language, are of purely Scandinavian descent. Stornoway, on the e. coast, is the principal town. Near it is Stornoway castle, the seat of sir James Matheson, bart., who, as proprietor of Lewis, has expended large sums in various kinds of improvements. Stornoway is visited by steamers from Glasgow. See HEBRIDES.

LEX FO'RI, a legal expression often used to denote the law of the country where a suitor brings his action or suit. See INTERNATIONAL LAW.

LEXICON. See DICTIONARY.

LEXINGTON, a co. in central South Carolina, having the Congaree river for its e. boundary, the Broad river for its n.e., the North Edisto for its s.w.; intersected in the n. by the Saluda river, emptying into the Congaree at Columbia on its e. border; 750 sq.m.; pop. '80, 18,590—18,553 of American birth, 7,476 colored. It is traversed by the Charlotte, Columbia and Augusta railroad. Its surface is uneven, and is covered with extensive forests of hardwood timber. Its soil is adapted to the raising of live stock, every variety of grain, tobacco, cotton, wool, sorghum, and sugar-cane. It produced in '80, $1,802,911 worth. Its industries are represented by cotton factories, carriage shops, flour and saw mills. Seat of justice, Lexington Court-House.

LEXINGTON, a city of Kentucky, on the Town Fork of the Elkhorn, a tributary of Kentucky river, 77 m. e. of Louisville. It is a handsome city, surrounded by a country of great beauty and fertility. Its principal edifices are a court-house, the state university, state lunatic asylum, city hospital, orphan asylum, banks, 18 churches. There are

4 newspapers, and many manufacturing establishments, mostly of hemp and tobacco. The town was being laid out when news arrived of the skirmish at Lexington, 1775, when the name was adopted. It has a beautiful cemetery, with a handsome monument to Henry Clay. Pop. '70, 14,801.

LEXINGTON (*ante*), a city in n. Kentucky, founded by col. Robert Patterson in 1775; incorporated in 1782; at the junction of the Cincinnati Southern railway, the Kentucky Central, and the Louisville, Cincinnati and Lexington railway. It is in Fayette co., 29 m. s.e. of Frankfort, 77 m. s. of Cincinnati, and was formerly the capital of the state. It is the seat of Transylvania university, founded in 1798, now absorbed in the Kentucky university, which was chartered in Harrodsburg in 1858, and removed here in 1865. This institution has a library of 12,000 vols., and under its jurisdiction are a law school, a college of arts, and a commercial college. The state agricultural and mechanical college embraces the Ashland estate of Henry Clay. The city has an elegant post-office, a public library of 16,000 vols., 1 state bank with a capital of $550,000; 6 national banks with an aggregate capital of $1,200,000; 8 papers, including 1 daily, 4 weekly, 2 semi-weekly; and an agricultural monthly magazine. Its leading industries are the manufacture of bagging and carriages; it has also gas-works, distilleries, and rope-walks. Its trade is supplied by the productions of a remarkably fertile country, for which it affords convenient facilities for transportation throughout the state. It has 2 private Roman Catholic schools, 5 seminaries for girls, the Lexington Baptist college for women, St. Catherine's academy (Roman Catholic), Christ church seminary (Episcopal), the Hocker college for women, and the Sayre institution. It has 7 public schools, where white and colored children are educated separately. Pop. '80, 16,656.

LEXINGTON, a small village of Massachusetts, 10 m. n.w. of Boston, celebrated as the scene of the first conflict between the colonists and British troops in the war of independence, April 18, 1775. Pop. of township '80, 2,460.

LEXINGTON (*ante*) was settled in 1642, and named after a t. in Nottinghamshire, Eng. It is celebrated in American history for having been the scene of the first battle in the revolutionary war, fought April 19, 1775, which aroused the colonies to resistance, precipitating the general conflict. On the night of April 18 the patriots discovered the intention of the British to send a detachment of troops to Concord, for the purpose of destroying some military stores which had been collected there, and also to seize the persons of John Hancock and Samuel Adams, who were residing at the house of the rev. John Clark in Lexington. Information of this design was spread abroad by Paul Revere, who rode from Charlestown to Lexington, warning the farmers along his route. On the same evening, gen. Gage, who commanded in Boston, had picketed the roads in the vicinity, and dispatched lieut.col. Smith, with 800 men, on the expedition to Concord. Revere eluded the pickets, and succeeded in his mission, so that when the advance of the British column reached Lexington it was opposed in the early morning by about 70 militia, who had formed on the town common, under command of capt. John Parker. The British were commanded by maj. Pitcairn, who, on observing the preparations made to resist his progress, halted his men to load, and then advanced them at the double-quick; himself riding in front and ordering the Americans to lay down their arms and retire. As the militia held their ground, maj. Pitcairn fired his pistol at them, and giving the order to his men, the latter discharged their muskets, with the result of killing four and wounding nine of the militia-men. The latter, being outnumbered, retreated, four being killed while flying. A scattering fire from capt. Parker's men wounded three British soldiers and maj. Pitcairn's horse, and, the militia being dispersed, the British force proceeded to Concord to effect the main object of the expedition. The distance is only about 2 m., and the place which became the second battle-ground of that day was reached at about 7½ o'clock. The country was by this time thoroughly aroused, and as many as 180 militia had assembled, who, as the British came in view, fell back and took position on the side of a hill, afterwards crossing the north bridge by order of col. Barrett, who had assumed command. The British, being left in possession of the town, proceeded to the destruction of such arms and provisions as they could find, a detachment being sent to gain control of the bridges. This body was attacked by the militia, and a brisk fight followed, which resulted in slight losses on both sides. The British, having effected all the damage possible, commenced to retreat, being followed by the Americans, who kept up a galling fire, and annoyed them seriously during their hurried flight. The importance of these two engagements was quite disproportionate to their immediate result in killed and wounded. They fired the souls of the patriots and impressed them with the sense of their own capacity to contend with the tried regulars of the British army, and may thus be said to have had an influence and effect beyond their merits as warlike achievements.

LEXINGTON, a t. of Missouri, on the right bank of the Missouri, 350 m. above St. Louis. It has 11 churches, 4 newspapers, and 4 banks. It was the scene of repeated conflicts during the war of secession. Pop. '80, 3,996.

LEXINGTON (*ante*), a t. in w. Missouri, settled in 1837; terminus of the Lexington to Sedalia branch of the Missouri Pacific railway, and the Kansas City and Eastern railway; the St. Joseph to Lexington branch of the Wabash, St. Louis and Pacific railway has its

terminus at North Lexington, across the river. It is the seat of justice of Lafayette co. on the southern bank of the Missouri river, near one of its most abrupt bends. The river being very tortuous it is 84 m. by water to Kansas City, lying directly w. of it, and but 42 m. by rail. It is 55 m. n. of Sedalia, and 40 m. e. of the Kansas line. It is built on a bluff 300 ft. high, and has a court-house and 2 seminaries for girls. Its leading industries are the manufacture of furniture and woolen goods. Hemp is extensively raised in its vicinity, coal is mined, and the trade on the river is brisk. There is a hill at the n.e. of the town where, in Sept., 1861, 2,800 union soldiers, under col. James Mulligan, sustained a prolonged siege against 25,000 soldiers of the confederate army, under gen. Sterling Price, at last surrendering the town and garrison, but on Oct. 16 the union forces, in command of maj. Frank J. White, gained possession of the town. In 1864 it was the scene of a skirmish between the forces of gen. Blunt and gen. Price.

LEXINGTON, a t. in central Virginia, in Rockbridge co., 110 m. w. of Richmond, 32 m. n.w. of Lynchburg; in the fertile valley of the Blue Ridge; pop. '80, 2,771—878 colored. It is situated on the North river, a tributary of the James, having a salubrious climate and delightfully picturesque surroundings. The foot hills in its vicinity contain deposits of sulphur ore, its meadows afford an abundance of nutritious grass, and the soil yields a liberal crop of cereals. Within a convenient distance are a number of sulphur springs, and groves of useful timber and ornamental trees add to the beauty and advantage of the town. It is the terminus of a branch of the James River and Kanawha canal, 20 m. in length. It is the seat of the Washington and Lee university, established by Robert Alexander in Augusta co.; removed in 1785 to this vicinity; named in honor of George Washington in 1796. Having been reorganized in 1865, in 1870 it added the name of Lee, in honor of gen. Robert E. Lee, its president in the years immediately following the close of the rebellion. It includes the Virginia military institute, founded in 1839 as a military and scientific school, having a state annual appropriation of $15,000; the state appointing 50 cadets annually; its cemetery is the burial place of gen. Stonewall Jackson and gen. Robert E. Lee. It has 7 churches, 3 hotels, 1 bank, 2 newspapers, 1 weekly and 1 semi-monthly, a public library, flour and saw mills, and an iron foundry.

LEX LOCI, a legal expression to denote the law of the country where a particular act was done, or where land is situated. See INTERNATIONAL LAW.

LEX LOCI (*ante*). See CONFLICT OF LAWS; FOREIGN COURTS.

LEX NON SCRIPTA, the unwritten law, an expression often applied to the common law, or immemorial custom.

LEX REI SITÆ. See CONFLICT OF LAWS; FOREIGN COURTS; INTERNATIONAL LAW.

LEX TALIO'NIS, the law of retaliation, common among all barbarous nations, by which an eye for an eye and a tooth for a tooth was considered the appropriate punishment. The doctrine is repudiated by all civilized countries.

LEYDEN (Fr. *Leyde*, the *Lugdunum Batavorum* of the Romans, originally *Luïjkduin*, from *luïjk*, an end, and *dun*, a hill; during the middle ages, *Lugduin* or *Leydis*), a celebrated seat of learning in Holland, situated on the Old Rhine, 22 m. s.w. of Amsterdam, and 17 n. of Rotterdam. Pop. Jan. 1, '80, 40,800. It is the oldest town in Holland, and has space for three times its present population. In 1640 Leyden contained 100,000 souls; in 1750 the numbers had fallen to 70,000; and at the beginning of the present century to 30,000. Since 1830 trade has again begun to flourish, and the population to increase. The streets are wide, the public buildings beautiful, and the canals broad and numerous. Within the city are the ruins of an old castle, called the "burg," supposed to have been built by the Romans before the birth of Christ. The principal manufactures are linen cloths, calicoes, woolens, but on a very small scale, as compared with former times. There is a considerable weekly market, for the whole of that part of Holland called Rhineland, held at Leyden, at which much butter and cheese change hands. But the chief ornament and glory of the city is its university—once unsurpassed by any in Europe. The origin of the university is well known. In 1574, when Holland was struggling to throw off the yoke of Spain, Leyden was besieged by the Spaniards, and had to endure all the horrors of famine. For 7 weeks the citizens had no bread to eat, and multitudes perished of hunger. The heroic burgomaster, Pieter Adriaanszoon Van der Werff, even offered his body as food to some who were imploring him to capitulate. At last the prince of Orange broke down the dikes, flooded the country, drowned a great number of the Spaniards, and relieved the inhabitants. The prince of Orange now offered, as some compensation for their unparalleled sufferings, either to remit certain taxes or to establish a university in the city. The Leydeners nobly chose the latter, which was inaugurated by prince William in 1575. Many eminent men from all countries of Europe have been connected with it, both as professors and students. We may mention Scaliger, Gomarus, Arminius, Grotius, Descartes, Boerhaave, Camper, Spanheim, Ruhnken. When it recently celebrated, with befitting solemnities, its three hundredth anniversary, the university had between 20 and 30 professors and upwards of 800 students, of whom about half are law students. It possesses a valuable library, with many rare MSS.; a magnificent collection in medicine; a botanical garden, valuable for its tropical plants; a museum of natural history, one of the richest in Europe; and

another equally fine of comparative anatomy. The museum of antiquities is also excellent. On Jan. 12, 1807, the most beautiful quarter of the city was destroyed, and many lives lost, by the explosion of a ship's cargo of gunpowder, and the site of the ruined streets is now a plain on which the troops are exercised.

LEYDEN, John, a poet and orientalist of some celebrity, was b. at Denholm, a village of Roxburghshire, Scotland, Sept. 8, 1775. His parents were in humble circumstances; but seeing his desire for learning, they made an effort for his education; and after passing through the ordinary course of study in the university of Edinburgh, he was licensed as a preacher or "probationer" of the church of Scotland. During the years of his university course, he had, however, learned much that formed no necessary part of it, and in particular, several of the languages of modern Europe, and some of the oriental languages. He was a most ardent and enthusiastic student. His varied gifts and attainments soon recommended him to the attention of some of the most eminent men of the time in Edinburgh. In 1799 his first work issued from the press, *A Historical Account of the Discoveries and Settlements of Europeans in Northern and Western Africa.* About this time, also, he contributed many translations from the northern and oriental languages, and original poems to the *Edinburgh Magazine.* He contributed to Lewis's *Tales of Wonder*, and aided Scott in amassing materials for his *Minstrelsy of the Scottish Border.* He was editor for one year of the *Scots Magazine.* In order to obtain opportunity of gratifying the strong desire which he felt to visit oriental countries, he studied medicine, and in 1802 sailed for India, having received the appointment of assistant-surgeon on the Madras establishment. Before leaving his native country he completed his *Scenes of Infancy*, a poem containing much that is beautiful; but on which, however, his reputation does not rest so much as on his minor pieces, and particularly his ballads. After his arrival at Madras, his health soon gave way, and he was compelled to remove to Penang, where he ardently prosecuted the study of the language, literature, history, etc., of the Indo-Chinese tribes. Having resided for a time in Penang, he left it for Calcutta, on being appointed a professor in the Bengal college; and he soon afterwards exchanged this office for that of a judge at Calcutta. When the expedition against Java was undertaken, Leyden obtained leave to accompany the governor-general thither; and at Batavia, in the exploration of a library which contained many Indian manuscripts in its musty recesses, he contracted a fever, of which he died after a few days' illness, Aug. 28, 1811. Leyden's versification is soft and musical; but "he is an elegant rather than a forcible poet." His attainments as an orientalist were extraordinary. The chief evidence extant of them, however, is an *Essay on the Languages and Literature of the Indo-Chinese Nations*, published in the *Asiatic Researches.* His *Poetical Remains* were published in 1819; and a new edition of his *Poems and Ballads*, with memoir by sir W. Scott, in 1858. A monument to Leyden was erected in Denholm. In 1875—his centenary—two new editions of his poems appeared.

LEYDEN, Lucas van, one of the most celebrated painters of the early Dutch school, was born in Leyden in 1494. His talents, which were developed when he was very young, were first cultivated by his father, Hugo Jacobs, an obscure painter; but he was afterward placed in the school of Cornelius Engelbrechsten, an artist of repute in his day. He commenced engraving when scarcely nine years of age. His picture of St. Hubert, painted when he was only 12, brought him very high commendation; and the celebrated print, so well known to collectors by the name of "Mahomet and the Monk Sergius," was published in 1508, when he was only 14. He practiced successfully almost every branch of painting, was one of the ablest of those early painters who engraved their own works, and he succeeded, like Albert Dürer, in imparting certain qualities of delicacy and finish to his engravings that no mere engraver ever attained. The pictures of Lucas van Leyden are noted for clearness and delicacy in color, variety of character and expression; but his drawing is hard and gothic in form. Examples are to be seen in many of the galleries on the continent. His range of subjects was very wide, and embraced events in sacred history, incidents illustrative of the manners of his own period, and portraits. His engravings are very highly prized by collectors, and are ranked about as highly as those of Albert Dürer. He also executed some wood-cuts, which are very rare. Bartsch gives a list of 174 engravings by him. His habits were expensive. He seems to have occasionally entertained his brother-artists in a sumptuous manner; was on terms of intimacy with the celebrated painter, Jean de Mabuse, who is alleged to have been rather too fond of good living; and held friendly intercourse with Albert Dürer, whose talents he admired without professional jealousy. He married in early life a lady of the noble family of Boshagen, by whom he had one daughter. He died in 1533, aged 39. He had been confined to bed 6 years before his death, but contrived to paint and engrave till within a short period of his decease.

LEYDEN, School of, in theology, the name given to certain Dutch theologians who follow the rationalistic professors of the university of Leyden, founded in 1575. The principal advocates of this school are Abram Kuenen, Tiele, and J. H. Scholten, professors in Leyden, and their pupils. Their views are similar to those of the Dutch Tübingen school. Scholten in his younger days was orthodox, and strongly opposed the views of Baur and his associates, but in 1864 came out boldly in defense of them. "Man," the Leyden school teaches, "arrives at a knowledge of the truth by the holy

Scriptures; but they must not be understood as containing the only revelation from God He also reveals himself to the world through the hearts of all believers. The Bible is the source of the original religion. There is a difference between the Scriptures and the word of God. The latter is what God reveals in the human spirit concerning his will and himself. The writing down of the communication is purely human; therefore the Bible cannot be called a revelation. To prove the certainty of the facts of revelation, historical criticism must be called in." But they assert, in applying "historical criticism," that we cannot go further back than the middle of the 8th c. before Christ, or the time of Hosea and Amos; that "all the preceding times are enveloped in hopeless myth. Abraham, Isaac, and Jacob, the founders of Israel, are not persons, but personifications They are purely ideal figures, for modern historical inquiry teaches us that races are not derived from one progenitor, but many. The development and preservation of Israel—its whole history—were the result of purely national causes." Christianity they regard as "neither superhuman nor supernatural. It is the highest point of the development of human nature itself, and in this sense it is natural and human in the highest acceptation of those terms. It is the mission of science to put man in a condition to comprehend the divine volume presented by Christianity." And what the relation of science to faith is may be learned from Opzoomer, of Utrecht university, who says: "Science is not to appear before the bar of faith, but faith before that of science; for it is not the credibility of knowledge, but of faith, that is to be proved. Science needs no justification. The believer, on the contrary, must justify his faith, and that before the bar of science. Thus, as a matter of course, the final decision and the supreme power rest with science." This writer's arguments against miracles are precisely those of Hume. He says: "We know nothing of the supernatural; to us there is not a single miracle."

LEYDEN JAR. See ELECTRICITY.

LEYS, JEAN AUGUSTE HENRI, 1815–69; b. Antwerp. His artistic studies were pursued at first under the direction of Brakaleer, his brother-in-law, and when he was but 18 years of age he exhibited a picture, "Combat of a Grenadier with a Cossack," which attracted much attention. After this he studied for a time in France and Holland, and then returned to Antwerp, where he won great distinction. His subjects were taken in part from the history of his own country, and in part from the life of the middle ages, and his work is the result of careful research and high artistic feeling and insight. A grand medal of honor was awarded him for three pictures in the Paris exhibition of 1855. He was similarly honored for work exhibited in the exposition of 1867. In 1846 he was decorated with the order of Leopold, in 1851 raised to the rank of officer, and in 1867 appointed commander of the order and raised to the dignity of officer in the legion of honor. He was also created a baron by Leopold, and chosen a member of the royal academy of Belgium. Died in Antwerp.

LE'ZE MAJESTY, an offense against sovereign power—*læsa majestas.*

LHA-SSA, or H'LASSA. See LASSA.

L'HÔPITAL, or L'HOSPITAL, MICHEL DE, 1504–73; b. at Aigueperse, in the present department of Puy de Dôme; studied jurisprudence at Padua; in 1547 was sent by the French court to the council of Trent in Bologna; in 1554 was made president of the court of accounts, and in 1560 chancellor of France. His ability and integrity were ackowledged by all parties, but he made enemies among extreme Roman Catholics by his moderation, and especially by his successful efforts to secure the freedom of Protestant worship and prevent the establishment of the inquisition in France. In 1568 he resigned the office of chancellor and retired to his estate at Bellebat, in the present department of Seine-et-Oise, where he died. His memoirs, 4 vols., were published in Paris in 1824, and an edition of his poems appeared in 1827.

LI, the name of a Chinese measure of length. The li = .577 Fr. kilomètre = .358 (rather more than one-third) English mile.

LIABILITY (LIMITED) ACTS. See JOINT-STOCK COMPANIES.

LIABILITY, LIMITED (*ante*), a limited responsibility of parties to certain contracts. The limit of such responsibility is fixed by statutory provisions. The most common case of limited liability occurs in limited partnerships. Such a partnership is created by written contract; the parties to it are either general or special partners, and a public notice must be given of its creation, of the names of the partners, and of the amount of capital contributed by the special partner or partners; and this capital must be actually paid in. Any deviation from the statutory forms withdraws the partnership from the operation of the statute, and makes each partner liable for the partnership debts to the full amount of his property, as in the ordinary partnership at common law. A joint-stock company "limited" is much the same thing as a limited partnership, and the operation of the statutes in their regard limits the liability of each member to the amount of his share in the company's stock. See JOINT-STOCK COMPANIES (*ante*).

LIA'NAS, a term first used in the French colonies, but afterwards adopted by English, German, and other travelers, to designate the woody, climbing, and twining plants which abound in tropical forests, and constitute a remarkable and ever-varying feature of the

scene. Such plants are comparatively rare in colder climates, although the honeysuckles and some species of *clematis* afford familiar examples of them; but as these often overtop the hedges or bushes in which they grow, and fall down again by the weight of their leaves as their stems elongate, so the lianas of tropical countries overtop the tallest trees, descend again to the ground in vast festoons, pass from one tree to another, and bind the whole forest together in a maze of living network, and often by cables as thick as those of a man-of-war. Many parts of the forest—as in the alluvial regions of the Amazon and Orinoco—thus become impenetrable without the aid of the hatchet, and the beasts which inhabit them either pass through narrow covered paths, kept open by continual use, or from bough to bough far above the ground. Many lianas—as some of the species of *Wrightia*—become tree-like in the thickness of their stems, and often kill by constriction the trees which originally supported them; and when these have decayed, the convolutions of the lianas exhibit a wonderful mass of confusion magnificent in the luxuriance of foliage and flowers. No tropical flowers excel in splendor those of some lianas. Among them are found also some valuable medicinal plants, as sarsaparilla. The rattans and vanilla are lianas. Botanically considered, lianas belong to natural orders the most different. Tropical plants of this description are seldom to be seen in our hot-houses, owing to the difficulty of their cultivation.

LIAS. The lias is the lower division of the oolitic or jurassic period (q.v.). The beds composing it may be considered as the argillaceous basis of that series of rocks, consisting of more than a thousand feet of alternations of clay and limestone, with but a few unimportant deposits of sand. It consists of the following groups:

Upper Lias	Cephalopoda bed. Lias sands. Upper Shale	300 feet.
Marlstone		200 "
Lower Lias	Lower shale. Bone bed	600 "

The upper lias consists of thin limestone beds scattered through a great thickness of blue clay, more or less indurated, and so aluminous that it has been wrought for alum at Whitby. A thick band of vegetable matter or impure lignite occurs in this division, in which are found nodules and lumps of jet, a peculiar mineral composed of carbon and hydrogen, and probably having a similar origin to the amber of the tertiary lignites. A series of brown and yellow sands, and a peculiar layer called the cephalopoda bed, from the abundance of these fossils contained in it, occur above these clays; recently, they have been separated from the inferior oolite, and joined to this division, on the evidence of the contained fossils.

The marlstone is an arenaceous deposit, bound together either by a calcareous or ferruginous cement, in the one case passing into a coarse shelly limestone, and in the other into an ironstone, which has been extensively wrought both in the north and south of England.

The lower lias beds consist of an extensive thickness of blue clays, intermingled with layers of argillaceous limestone. In weathering, the thin beds of blue or gray limestone become light brown; while the inter-stratified shales retain their dark color, giving the quarries of this rock, at a distance, a striped or ribbon-like appearance, whence, it is supposed, the miner's name lias or layers is derived. Generally the clays rest on triassic rocks, but occasionally there is interposed a thin bed of limestone, containing fragments of the bones and teeth of reptiles and fish, generally of undoubted liassic age; occasionally, the bones of keuper reptiles are met with in it, causing it to have been referred to the trias.

The lias is highly fossiliferous, the contained organisms being well preserved; the fishes are often so perfect as to exhibit the complete form of the animal, with the fins and scales in their natural position. Numerous remains of plants occur in the lignite and in the shales. The name gryphite limestone has been given to the lias, from the great quantities of *gryphea incurvata*, a kind of oyster, found in it. Some of the older genera of mollusca are still found in these beds, but the general character of these animals more nearly approaches the newer secondary forms. Fish remains are frequently met with; the reptiles, however, are the most striking features. They are remarkable for the great numbers in which they occur, for the size which many of the species attain, and for the adaptations in their structure which fitted them to live in water. The most noteworthy are species of ichthyosaurus (q.v.) and plesiosaurus (q.v.).

The liassic rocks extend in a belt of varying breadth across England, from Whitby, on the coast of Yorkshire, s. to Leicester, then s.e. by Gloucester, to Lyme Regis in Dorsetshire.

LIBA'NIUS, one of the latest and most eminent of the Greek sophists or rhetoricians, was b. at Antioch, in Syria, about 314 or 316 A.D. He studied at Athens under various teachers, and first set up a school in Constantinople, where his prelections were so attractive that he emptied the benches of the other teachers of rhetoric, who had him brought before the prefect of the city on a charge of "magic," and expelled. He then proceeded to Nicomedia; but after a residence of five years, was forced by intrigues to leave it, and

returned to Constantinople. Here, however, his adversaries were in the ascendent; and after several vicissitudes, the old sophist, broken in health and spirit, settled down in his native city of Antioch, where he died about 393 A.D. Libanius was the instructor of St. Chrysostom and St. Basil, who always remained his friends, though Libanius was himself a pagan. He was a great friend of the emperor Julian, who corresponded with him. His works are numerous, and mostly extant, and consist of orations, declamations, narratives, letters, etc. The most complete edition of the orations and declamations is that by Reiske (4 vols. Altenb. and Leip. 1791–97), and of the letters that by Wolf (Amst. 1738).

LIBANON. See LEBANON.

LIBANUS, MOUNT. See LEBANON.

LIBATION (Lat. *libare*, to pour out), literally anything *poured out* before the gods as an act of homage or worship; a drink-offering. The term was often extended in signification, however, to the whole offering of which this formed a part, and in which not only a little wine was poured upon the altar, but a small cake was laid upon it. This custom prevailed even in the houses of the Romans, who at their meals made an offering to the Lares in the fire which burned upon the hearth. The libation was thus a sort of heathen "grace before meat."

LI'BAU, a seaport of Courland, Russia, on the Baltic, 526 m. s.w. of St. Petersburg. It existed previous to the settlement here of the Teutonic knights, who surrounded the town with walls, and erected in 1300 a cathedral and a castle. In 1795 it was annexed to Russia. The port is open almost the whole year, but has only a small depth of water. Its inhabitants, since the 17th c., have devoted themselves to ship-building, and now furnish merchant-vessels to St. Petersburg, Riga, and Revel. In 1873 over 200 ships entered and as many cleared the port. The imports, amounting in value to 1,500,000 rubles annually, consist of salt herrings, wines, fruit, and colonial produce; the exports (about 5,000,000 rubles in value) are chiefly cereals, leather, flax, seeds, and timber. Pop. '80, 20,000.

LIBEL, in Scotch law and in English ecclesiastical law, means the summons or similar writ commencing a suit, and containing the plaintiff's allegations.

LIBEL is a publication either in writing, print, or by way of a picture, or the like, the tendency of which is to degrade a man in the opinion of his neighbors, or to make him ridiculous. When similar results follow from words spoken, the act is called slander (q.v.), which, however, is less severely punished. It is extremely difficult to define what amounts to libelous matter, for the question whether a publication amounts to libel must always be left to the decision of a jury, and this decision is somewhat uncertain, and varies with the popular mood for the time. But the test is, in point of law, whether there results degradation of character. There are two remedies in England for the wrong caused by libel; one is by indictment, the other is by action. If the offense is of a public nature, an indictment is generally resorted to, for every libel tends to a breach of the peace; or the libeled party applies to the court of queen's bench for a criminal information, which is a variety of indictment. When an action is brought, its object is to recover damages for the private injury sustained. The rule formerly was, in indictments and criminal informations, that the defendant was not allowed to plead in defense that the libelous matter was true. But the law was in 1843 altered, and the defendant is now allowed, in criminal as well as civil proceedings, to prove the truth, and that it was for the public benefit that the matter should be published, stating how. If, however, the jury by their verdict find otherwise, this defense often aggravates the punishment. The statute 6 and 7 Vict. c. 96 also improved the law of libel as regards editors, and proprietors of newspapers and periodical publications, who were formerly held liable for libels inserted without their knowledge. By the present law, the defendant may plead in defense that the article in question was inserted without actual malice and without gross negligence, and that, before the commencement of the action or at the earliest opportunity afterwards, the defendant inserted an apology, or if the periodical did not appear within an interval of a week, that he offered to publish an apology in any newspaper or periodical to be selected by the plaintiff. But the defendant, when he pleads this defense, must also pay into court a sum of money, by way of amends for the injury done. In these cases, even where the proceeding is by indictment or criminal information, the defendant, if he obtains a verdict, will (contrary to the general rule) be entitled to have his costs paid by the prosecutor. There are certain libels which are called blasphemous on account of their denying the fundamental truths of Christianity, and these are punishable by fine and imprisonment. So there are seditious, treasonable, and immoral libels, according to the nature of the subject-matter. If any person threaten to publish a libel, or offer to prevent such publication, with intent to extort any money, security, or valuable thing, or with intent to induce any person to confer or procure any appointment or office of profit or trust, he is liable to imprisonment with or without hard labor for three years. If any person maliciously publish a defamatory libel, knowing the same to be false, he is liable to two years' imprisonment and a fine; and the malicious publication, even though not with knowledge that it is false, makes the author liable to one year's imprisonment and a fine.

LIBEL (*ante*) is chiefly distinguished, in regard to legal remedy, from slander or spoken defamation by the fact that it may become the subject of criminal proceedings, its capability of indefinite repetition making it more dangerous and more likely to result in a breach of the peace than the former. With every sale of a book or paper containing libelous matter, the offense is renewed. If a libel appear in a newspaper or magazine, both editor and publisher are liable, even though the libelous article be accompanied by the name of its author. No proof of express malice in the publication is necessary, but malice may be implied. Formerly truth was no defense in an action for libel, but it is now a competent defense, the old rule of law having been changed by statute. When a person has occasion, in the discharge of some legal, social, or moral duty, to criticise the character or conduct of another, the communication in which he discharges such duty is called privileged, and is protected by the courts, and such protection is either absolute or relative. In the former instance, e.g., the proceedings of a court of justice, no action could be maintained; in the latter, e.g., a letter in regard to the character of a servant by a former employer, no action could be maintained unless express malice were proved. In a civil action of libel, if the words be clear, the judge determines whether they constitute a libel or not; but otherwise he must submit them to the jury. In a criminal prosecution for libel, the jury passes upon a mixed question of law and fact, viz., the proper meaning of the libelous words, and whether they constitute a libel. In many states the defendant is allowed both to set up a plea of justification, i.e., the truth of the alleged libel, and to put in evidence of the truth of the libel, in mitigation of damages; this rule has been criticised as really allowing the defendant two separate defenses, by one of which he admits the libel and by the other denies it. LIBEL (in practice) is the petition of a plaintiff addressed to an ecclesiastical or admiralty court, setting forth his cause of action and the nature of the relief he expects. It is the ordinary form for the beginning of an admiralty suit in the United States courts.

LIBEL'LULA AND LIBELLULIDÆ. See DRAGON-FLY.

LI'BELT, KAROL, PH.D., b. Posen, 1807; studied mathematics and philosophy at Berlin, gaining a prize for his essay *De Pantheismo*. He was engaged in the Polish revolution of 1830, and after its failure retired to his estates in Posen, and devoted himself to periodical literature. He was arrested in 1846 for being concerned in the conspiracy of Mieroslawski, but liberated at the outbreak of the revolution at Berlin in 1848. He was a member of the Slavic congress at Prague in 1849, and a leader of the Polish fraction in the second Prussian chamber in 1859. His *Philosophy and Criticism*, in 5 vols., and his *Æsthetics*, in 3 vols., are his principal works. His philosophical works have been translated into German, and have attracted no little attention as able expositions of the German philosophy. Dr. Libelt also wrote a number of mathematical, economical, and agricultural essays and pamphlets. He d. 1875.

LIBER. See BARK and BAST.

LIBER. See BACCHUS, *ante*.

*LIBERALS, a name given first when lord Byron and his friends started the periodical called *The Liberal* to represent their views in politics, religion, and literature. The name since 1832 has been applied to the more advanced whigs and reformers. The party held office under earl Gray, viscount Melbourne, earl Russell, and viscount Palmerston. In May, 1874, the new city liberal club was organized with earl Granville as president, and a new liberal club for the west end was founded in June of the same year. Mr. Gladstone resigned the leadership of the party in 1875, and resumed it in Dec., 1879. As a party name this word *liberals* has been definitely adopted in Spain, where the party of the cortes assumed the title of *liberales*, and nicknamed their opponents by that of *serviles*.

Liberals in religion may include two classes; first, those who, like the German rationalists, reject the supernatural in revelation, accepting the historic Christ and his teachings as on the high plane of humanity; second, those who call themselves liberal Christians, as the modern Unitarians, who, admitting the supernatural, reject the vicarious atonement, the corruption of human nature, the necessity of regeneration, and (usually) the special inspiration of the Scriptures. Like the latitudinarians of the 16th c. and the modern broad church party, they consider dogma as unimportant, make much of the life and moral instruction of Christ, and are willing to fraternize with any who receive Christ as their teacher. See *Supp.*, page 898.

LIBERATION, in Scotch law, means discharge from imprisonment. Formerly, if a person was imprisoned for debt, and paid the amount, he had to present a bill of liberation and suspension to get out of prison, which is not now necessary.

LIBE'RIA, a negro republic on the grain coast of Upper Guinea. The territory of the republic extends from long. 5° 54′ to 12° 22′ west. The length of coast is about 500 m., the average breadth of the territory about 50 miles. On Dec. 31, 1816, an association, of which Henry Clay (q.v.) was president, styled the American colonization society, was formed, for the purpose of founding a colony of emancipated negroes, and of giving them favorable opportunities of self-improvement. The first attempt failed, in consequence of the selection of an unhealthy locality; but in Dec., 1821, a treaty was concluded with the native princes, by which a tract of land fit for the purpose was

acquired. The association immediately commenced operations, and allotted to each man 30 acres of land, with the means of cultivating it. A town, called Monrovia, was founded at cape Mesurado; the boundaries of the colony were enlarged by the purchase of new tracts; and a second town, called Caldwell, in honor of the originator of the association, was founded upon the river Mesurado. New settlements were afterwards formed at cape Monte and in the newly acquired Bassa land, in which, in 1834, a town was founded, and called Edina, in acknowledgment of pecuniary aid sent to the colony from Edinburgh. Many of the neighboring chiefs were received into the colony, whilst others were subdued. In 1847, Liberia was left to its own resources, declared an independent republic, and the government committed to a president, senate, and house of representatives. The president and representatives are elected for 2, and the senators for 4 years, all citizens being qualified electors when they reach 21 *years of age*, and possess *real estate*. The judicial power is vested in one supreme and several subordinate courts. Slavery and the slave-trade are prohibited, and the right of petition established. Whites are excluded from rights of citizenship, but this is only a temporary measure. The prosperity of the colony soon became very obvious; churches and schools were founded in greater proportion to the population than in most parts of Britain or America; a regular postal system was established, newspapers published, and slavery in the neighboring states abolished. Negroes from the neighboring regions, settling in the republic and submitting to its laws, were admitted to participation in civil and political freedom equally with the colonists. The new republic was recognized by Britain in 1848, and since by other European powers. The British government made it a present of a corvette of war with four guns. The prosperity and usefulness of Liberia have since continued to increase, but the number of settlers from North America has never been great in any year, and the whole number in the country is reckoned not to exceed 19,000. The rich kingdom of Medina, annexed in 1880, has about 700,000 inhabitants, and these with the native inhabitants of Liberia were recently estimated at 1,400,000, and about 50,000 had acquired the English language, of whom about 3,000 were members of the Christian church. Agriculture is carried on with increasing success. Sugar is the principal article of produce, and also of manufacture. Cocoa, cotton, coffee, arrow-root and rice are also cultivated. Trade is rapidly extending, and palm-oil, ivory, gold-dust, camwood, wax, coffee, indigo, ginger, arrow-root, and hides are amongst the principal articles of export. The exports to the United States in 1884 were valued at £11,485. Revenue '84, £38,000.—See Stockwell's *Republic of Liberia* (New York, 1868); and *The Republic of Liberia*, by Blyden (*Methodist Quarterly Review*, New York, 1872).

LIBE'RIUS, a native of Rome, b. in the early part of the 4th c., succeeded to the see of Rome in 352, on the death of pope Julius I. His pontificate falls upon the stormiest period of the semi-Arian controversy. See ARIUS. The emperor Constantius supported the semi-Arian party with all his authority; and the council of Arles in 353, and that of Milan in 355, formally condemned Athanasius (q.v.), the great representative of the orthodox belief. Liberius refused to confirm this decree, and, even in opposition to the personal commands of Constantius, withheld his subscription. He was, in consequence, in common with several others, deposed and banished to Berœa by the emperor, who caused a Roman deacon, Felix, to be elected in his stead. The later history of Liberius is a subject of controversy. He was restored to his see in 358, but the terms on which he was recalled are much disputed. He survived his return from exile 8 years, and died in high repute for sanctity at Rome in 366. His only remains are some letters preserved by Coustant in the *Epistolæ Romanorum Pontificum*. During his life, many spurious letters and decrees were circulated in his name.

LIBER PONTIFICA'LIS, part of the title of a history of the bishops of Rome professing to begin with the apostle Peter and extending to Nicolas I. (867 A.D.), with an addition subsequently made of the times of Adrian II. and Stephen VI. (891). Anastasius, librarian of the church under Nicolas I. and abbot of a convent in Rome, was formerly supposed by many to be the author of the book; but later investigations have shown almost certainly that it existed before his time. The oldest materials now known that were used in the compilation of it were furnished by a list of the popes down to Liberius, which was probably written before his death (366). The original MS. has been lost, but several copies of it, taken in the 17th c. from other copies, are extant. Another list of the popes comes down to Felix IV. (530). Parts of it are almost literal copies from the former, but many additional particulars are given, drawn from various sources and having different degrees of historical value. Both lists were afterwards continued and ultimately formed the Liber Pontificalis, the oldest known copy of which belongs to the end of the 7th or the beginning of the 8th century. A first continuation of it extends to Gregory II., who became pope in 714, and a second ends with Stephen III., 757. After this time several other continuations were made, the latest of which terminates, as has been mentioned, with Stephen VI., 891. Besides the sources already spoken of, materials for the history were furnished by traditions, written documents, buildings, inscriptions, and other monuments. Additions to the book have been made: 1. By three histories of the popes, the authors of which are not known, (1) from Laudo, 912, to Gregory VII., and belonging to the 11th c.; (2) extending down to the same date, and written during Gregory's life; (3) from Paschal II., in the early part of the 12th century. 2. By a his-

tory written in the 13th c., extending from Gregory VII. to Honorius II. 1129. 3. By histories originating at the close of the 12th century.

LIBERTINES, The, or Spiritualists, an odious and pernicious sect that sprang up in the 16th c. in the reformed church of France. They arose in Flanders. Calvin mentions Coppin of Lille, who first attempted to introduce the doctrines of the Free Spirit in his native city in 1529. Quintin and a priest named Pocques or Pockesius became the leaders in France in 1534. They are said to have made 4,000 proselytes in France alone, and not only among the lower classes, but also among the higher and learned. They obtained the favor and protection of Margaret, queen of Navarre, sister to Francis I., and found patrons in several of the reformed churches. They called themselves Libertines and Spiritual brethren and sisters. They themselves published no account of their tenets, but, so far as they can be ascertained from the writings of Calvin, their doctrine is about as follows: That the Deity is the sole operating cause in the mind of man, and the immediate author of all human actions; that consequently the distinction of good and evil with regard to these actions is false and groundless, and that men cannot, properly speaking, commit sin; that religion consists in the union of the spirit or rational soul with the Supreme Being; that all those who have attained this happy union, by sublime contemplation and elevation of mind, are then allowed to indulge, without exception or restraint, their appetites and passions; that all their actions and pursuits are then perfectly innocent; and that after the death of the body, they will be united to the Deity. Their system was pantheistic and antinomian. From being a mere dogma, it degenerated into open and avowed sensualism. Calvin sternly denounced their principles, and it was because of his efforts that this sect left France, took refuge in Belgium, and at last entirely disappeared. In Geneva they made an insurrection May 15, 1555, when their principal leaders were exiled or imprisoned. Dr. Mosheim considers these Libertines or Spirituals as a remnant of the ancient *Beghards* or Brethren of the Free Spirit. This name in England was given to the early Anabaptists about the middle of the 16th century.

LIBERTY, in English law, is often used to denote a franchise, or portion of the royal prerogative delegated to a subject; also a privileged district in a county exempt from the sheriff's jurisdiction.

LIBERTY, EQUALITY, FRATERNITY. For nearly a century, these three words have been accepted as embodying the creed of those who maintain the rightful supremacy of the numerical majority; and they have been sounded as the watchword of that formidable movement known on the continent of Europe as "the Revolution," of which the object is to assert this supremacy by overturning the existing fabric of society. When contrasted with the democratic creed of antiquity, the only novelty which the modern symbol exhibits consists in the proclamation of "equality;" for "liberty," in the widest sense—meaning thereby the ultimate extension of political power to the whole body of the citizens—has been the object of the most enlightened politicians of all ages; whilst the protest in favor of "fraternity" is a mere sentimental commonplace, about the speculative soundness of which there never was any real difference of opinions.

The first state document of importance in which the doctrine of equality is set forth is the American declaration of independence of July 4, 1776. This celebrated document proceeds thus: "We hold these truths to be self-evident: *that all men are created equal;* that they are endowed by their Creator with certain unalienable rights; that among these are life, liberty, and the pursuit of happiness," etc. This, as we have said, was in 1776. But as a speculative opinion, the doctrine of equality had been proclaimed by Hobbes more than a century before, and from his time down to the period at which it thus received practical recognition, it had never been lost sight of by the class of speculators to which Hobbes belonged. Under different forms and from various points of view, it had been reasserted by Spinosa, Rousseau, Helvetius, and ultimately by the class of political declaimers whose works were simultaneous with the American, and immediately preceded the French revolution.

Hobbes was bolder than his followers, and by assuming a premise which, had it been true, would certainly have justified his conclusion, saved his logic, though he did not secure a very stable foundation for his law. He asserted that men are not only born, but continue in essentials very nearly equal. "Nature," he said, "has made little odds among men of mature age as to strength and knowledge." Rousseau, on the other hand, feeling that subjective and objective experience would at once repudiate such an assumption, admitted the existence of inequalities in maturity, and scarcely ventured to deny them even at birth, but ascribed them mainly to education, and to other distorting and deranging principles in human nature and human society, which it is the object of law and government to counteract. A third class of reasoners, whilst admitting the fact of inequality, and not condemning it as abnormal in the case of individuals, asserted that the argument in support of social and political equality is sufficiently founded on the generic equality of mankind—on the proposition, viz., that *all men are equally men.* They forgot, or found it convenient to ignore, that the argument of their opponents rested on the proposition, that *all men are not equal men;* and consequently would not have been in the slightest degree affected even by the admission of the generic equality for which they contended. To this last class belongs prof. Ahrens, whose work on natural

law has been used as the text-book in the *Ecole de Droit* in Paris. But all these writers agree in maintaining the inalienable connection between equality and liberty; and in asserting that the realization of the latter must of necessity be in proportion to the completeness with which the former is realized. In Great Britain, hitherto, the opposite creed has prevailed. Experience, both subjective and objective, has led to the conclusion that, in point of fact, men come into the world and continue during the whole course of their earthly sojourn to be extremely unequal in strength, intelligence, virtue, and worth. It is on this assumption that the whole fabric of our liberties rests. So far from believing liberty to involve the fictitious recognition of an equality which does not exist, or the creation of an equality which is contrary to nature, we hold it to necessitate the recognition of the inequalities which nature has established, and which God as the author of nature has decreed. Nay, further, we conceive its perfection to be in direct proportion to the completeness with which these inequalities are recognized, and their consequences, in the shape of property, social position, and the like, are vindicated by the political machinery of the state. Society, in our view of the matter, is an organic structure, is cosmic, just in so far as it recognizes these inequalities; and begins to be inorganic, chaotic, the moment that it ignores them. In like manner, the political, which is the mirror of the social organization of the state, performs its appropriate function only when and in so far as it truly reflects the inequalities which society has recognized and sanctioned. It must neither add to nor take from the facts which society presents to it. To each it must assign his own, and nothing but his own; and his *own* politically is the place which society has already conceded to him. These views, which in a somewhat irregular manner have always been recognized and acted upon in England, have been thought out and systematized within these last few years by Mr. Mill and the class of politicians to whom in future the title of progressive conservatives will probably be applied. By no writer, perhaps, has the true doctrine been stated with greater force than by John Adams, the friend and successor of Washington, and second president of the United States. The following passage is selected from many to the like effect in the recent edition of his works by his grandson, Charles Francis Adams: "That all men are born to equal rights, is true. Every being has a right to his own as clear, as moral, as sacred, as any other being has. This is as indubitable as a moral government in the universe. But to teach that all men are born with equal powers and faculties, to equal influence in society, to equal property and advantages through life, is as gross a fraud, as glaring an imposition on the credulity of the people, as ever was practiced by monks, by Druids, by Brahmans, by priests of the immortal Lama, or by the self-styled philosophers of the French revolution. For honor's sake, Mr. Taylor, for truth and virtue's sake, let American philosophers and politicians despise it."—(Vol. vi. p. 454.)

LIBERTY, a co. in n. Florida, having for its w. border the navigable Appalachicola river, and its e. the Ocklockonnee river, is bounded on the extreme n. by the Jacksonville, Pensacola and Mobile railroad; 800 sq.m.; pop. '80, 1362—1361 of American birth, 548 colored. Its surface is even, it has good tillable lands, and fine grazing pastures, but its farms are scattered and it is four-fifths woodland. Its soil produces tobacco, cotton, wool, rice, oats, corn, sweet potatoes, dairy products, and sugar-cane. It produced in '70, 16,335 lbs. of honey. Seat of justice, Bristol.

LIBERTY, a co. in s.e. Georgia, having the Cannouchee river for its n. boundary, the navigable Altahama river and a tributary for its s.w., and the water of St. Catherine's sound on the s.e.; also drained by the North Newport river; 650 sq.m.; pop. '80, 10,564—10,533 of American birth, 7,040 colored. It is intersected by the Savannah, Florida and Western railway. It comprises St. Catherine's island, 15 m. in length, lying within the coast line, the distance that separates it from the mainland being not more than a mile. Its surface is level and sandy, particularly near the rivers, and in certain sections marshy. It is two-thirds covered with pine forests. It has a fertile soil adapted to the raising of live stock, oats, corn, sugar-cane, cotton, wool, sweet potatoes, wine, dairy products, honey, and in '80 it produced 2,704,033 lbs. of rice. Cash value of farms in '80, $416,221, numbering 1,228 farms. Seat of justice, Walthourville.

LIBERTY, a co. in s.e. Texas, traversed by Trinity river and the Texas and New Orleans railroad; 1600 sq.m.; pop. '80, 4,999. Its surface is partly in prairie and partly in timber. Mineral springs are numerous, and petroleum has been found in some places. Cotton is one of the chief products of the soil, and cattle-raising is extensively pursued. Capital, Liberty.

LIBERTY, the capital of Clay co., Mo., on the Hannibal and St. Joseph railroad, 16 m. s. of Holt; pop. 1,476. It has two weekly newspapers and is the seat of considerable trade.

LIBERTY, Ohio. See page 899.

LIBERTY, in theology. See FREE WILL, *ante*.

LIBERTY OF THE PRESS. See PRESS, LIBERTY OF; LIBEL.

LIBERTY, RELIGIOUS, is the natural right, properly belonging to every man, to worship God and form his religious opinions according to the dictates of his own judgment and conscience. God revealed his law to the Hebrews as a nation. His words were spoken to the assembled multitude, demanding obedience from every man. The evi-

dence that it was from him was given publicly to them all. Thus declared and proved it was binding on them; but the question whether they would receive it was between them and God. The adoption of it was to be their own voluntary aet. After their entrance into Canaan the subjeet was submitted to them in a publie assembly. All civil authority over religious affairs being disclaimed, the right of every man to judge and aet for himself coneerning them was recognized; the civil magistrate having simply the same right as every other man. This right the people exercised and thus entered into a covenant with God, by virtue of which the law revealed by him and adopted by them beeame the religion of the land. Under the old monarehies the king, arrogating to himself absolute power over his subjects, made no distinction between religious and secular things. Religion was simply one department of his government, in which his will was the only law. Thus the kings of Assyria, Babylon, Persia, and Syria imposed religion by absolute decree on all the nations under their control. Thus the Roman empire made laws on the subjeet of religion as a part of state affairs. When Christianity began to spread through the empire the emperors regarded it as subject to their will, because developed within their territory. Generally they were hostile to it and for various reasons. As it increased in power they beeame jealous of it. They strove to crush it as something that rivaled and threatened to subvert their own authority. This state of things, eontinuing for 300 years, culminated in Diocletian's determined effort to exterminate Christianity, in which he boasted for a time that he had suceeeded. When Constantine, having become emperor by suecess in war, embraced Christianity, the hostility eeased; but the exereise of authority over the whole church went on unehanged, exeept that, being now in the hands of a friend and joyfully recognized by bishops and ehurehes as belonging to him, it was extended to all departments of religious affairs. The first general council was convened by him, and was formally opened by his stately entranee, whieh Eusebius thus deseribes: "After all the bishops had entered the central building of the royal palaee eaeh silently awaited the arrival of the emperor. When his approach was announced they all rose from their seats, and the emperor appeared, like a heavenly messenger of God, covered with gold and gems—a glorious presence, very tall and full of beauty, strength, and majesty. When he reached the golden throne prepared for him he stopped, and sat not down until the bishops gave him the sign. And after him they all resumed their seats." In proeess of time, after the removal of the government from Rome, mueh of the authority over the west which the emperor had exereised naturally fell to the bishop of Rome, or was adroitly secured by him. Thus, as the papacy was established and strengthened, the governments of Europe found themselves subjected to an absolute dominion under the name of eeclesiastieal authority. At the reformation, when several states of Europe renounced the authority of the pope, the Protestant kings assumed the headship of the church as a department of the government belonging to them without question, by virtue of their office. The assumed power of legislative control embraeed the very existence and organization of the ehurch as a part of the state, and ineluded its creed, ministers, serviees, and laws. Thus a national ehureh being established in each eountry, they who differed from it in religious opinion or practice were liable to coereion, loss of property, civil disabilities, imprisonment, and even death. This state of things was one of the chief forees that produced and molded the settlement of those British colonies in America whieh at length became the United States. But, although many of the colonists came to these shores in order to enjoy religious liberty for themselves, none of them at first had learned to regard religion as separate from the state. On the contrary, the best of them expected to establish a religious state. In some colonies particular forms of religion were set up, and some articles of faith were established. In South Carolina, New York, and Virginia the church of Eugland was established by law. In New England a kind of theocratic government was attempted. Among these colonies violent efforts were made to enforee uniformity. To Maryland, under the guidance of a governor who was a Roman Catholic, belongs the honor of granting toleration to other forms of religion. Rhode Island has the still higher distinetion of being the first state that, separating entirely civil government and religion, recognized in its constitution the right of every man to absolute religious liberty. This separation of religion from secular affairs, having been once perceived and acknowledged, was rapidly accepted in the colonies, so that when the constitution of the United States was formed these two articles were made parts of it: "No religious test shall ever be required as a qualification to any offiee or publie trust under the United States." "Congress shall make no law respecting an establishment of religion or prohibiting the free exercise thereof." The constitutions of the several states contain similar provisions. It has become a settled American principle, whether rightly or wrongly, that any religious organization is, by its nature, separate from civil governments; and that, as to it, all persons are equal and free before the law. The influence of American principles and practice has been very powerful over Europe and other parts of the world. Toleration in religious matters is becoming general, and great progress towards liberty of worship has been made. In Franee, different denominations are aided by the government; in Germany, the imperial government interferes little with the right of worship; in Russia, the public opinion of Christendom in general and of the United States in particular has mitigated the severity of autocratic control over religious affairs; Spain and Italy have been revolutionized; and under the Vatican liberty of worship is enjoyed. The liberty

of belief and worship, however, is not held to include the right to form organizations called religious which hold themselves not amenable to the civil government. The colonies of Great Britain possess perfect religious liberty. A large part of the Scottish church has voluntarily renounced all governmental endowments in order to be free from state control. The Anglican church in Ireland has been disestablished by law. It is still established in England, but a particular religious belief is not now required as a qualification for any civil position, except the throne and the head-ship of a few literary institutions. In the Turkish empire, under the influence of American instruction and European diplomacy, much progress towards religious liberty has been made. And in most other countries of the world, through the power of civilization, commerce, and philanthropy, liberty is either positively or tacitly given to practice, teach, and embrace the Christian faith. In Austria, while there is a relaxation of former restraint, religious liberty cannot be said to be fully exercised: there are instances even of persecution.

LIBERTY, STATUE OF. See page 899.

LIBERTY OF THE SUBJECT is a general phrase descriptive of the right of the individual subject to do all things not specially prohibited by the law, and the less restriction there is by the law, the greater is the extent of the liberty enjoyed. In its widest sense, the phrase may be understood as comprising the whole of the rights allowed by law to the subject; but what is generally understood is the liberty of the person, or of rights connected with the person—such as personal liberty or freedom from slavery, the right of free speech, liberty of conscience, liberty of the press, and constitutional liberty, or the liberty to influence and take part in legislation, which may be further subdivided into the limitation of the royal prerogative, the powers and privileges of parliament, the right of applying to courts of law for redress of injuries, the right of petitioning the crown or parliament, the right of having arms for defense, the right of habeas corpus, etc. All these subjects are noticed in detail under their proper heads.

LIBIDIBI. See DIVIDIVI.

LIBOCE'DRUS, a genus of evergreen trees, belonging to the conifera, resembling the arbor vitæ, but differing in the structure of the cones, the scales not overlapping as in that tree. There are two species in New Zealand, two in the mountains of Chili and in the Pacific sierras of the United States, growing usually at an elevation above 4,000 ft. The last-named species was named by Dr. John Torrey *L. decurrens,* from the fact that the bases of the small scale-like leaves are decurrent upon the stem. The tree attains a height of from 120 to 140 ft., and a trunk from 6 to 8 ft. in diameter without branches for 80 to 100 ft. Its beautiful, glossy, green foliage, and its graceful form when young make it one of the finest of ornamental evergreens. Some have been planted in the vicinity of New York and are said to have thrived well. It has been confounded with the thuja gigantea, but its decurrent leaves make an easy distinction. In California it is called *white cedar,* but this name properly belongs to another tree. Its wood, of a yellowish color, surpasses red wood in durability, and is valuable for various purposes.

LIBOURNE, a handsome t. of France, in the department of Gironde, on the right bank of the Dordogne, at its confluence with the Isle, 20 m. n.e. of Bordeaux. It is one of the ancient *Bastides* or free towns, and was founded by Edward I., king of England, in 1286. It carries on considerable trade in wines, spirits, grain, salt, and timber. Cotton-yarn, iron, leather, ropes, and nails are manufactured. Pop. '72, 11,456.

LI'BRA, the seventh sign in the zodiac. At the first point of Libra, the ecliptic passes across the equator to the southern hemisphere, this point being thus the *autumnal equinox.*

LIBRARIES. The term library is applied indifferently to buildings, etc., destined to contain books, and to the books themselves deposited in these buildings. In the present article, it is used chiefly, if not exclusively, in the latter sense.

Passing over the "libraries of clay," as the collections of inscribed bricks and tiles of the Assyrians and Babylonians have been aptly designated, the first library, properly so called, of which we have any knowledge, is that which, according to Diodorus Siculus, was formed by the Egyptian king Osymandyas. The existence of this establishment, with its appropriate inscription, *Psyches iatreion*—the storehouse of medicine for the mind—was long regarded as fabulous; but the researches of Champollion, Wilkinson, and other modern investigators, go far to prove that the account of Diodorus, though perhaps exaggerated, is at least based upon truth. A more celebrated Egyptian library was that founded at Alexandria by Ptolemy Soter, for an account of which see ALEXANDRIAN LIBRARY. The library of Pergamus, a formidable rival to that of Alexandria, was founded probably by Attalus I., and was largely increased by the fostering care of his successors. As stated in the article just referred to, it was ultimately removed to Alexandria, being sent by Antony as a gift to Cleopatra. At the time that this transference took place, it contained, according to Plutarch, 200,000 volumes.

The first public library established at Athens is said to have been founded by Pisistratus; but the information we possess regarding this and other Grecian libraries is meager and unsatisfactory. The earliest Roman libraries were those collected by Lucullus and by Asinius Pollio. The latter was a public library, in the fullest sense; and the former, though private property, was administered with so much liberality as to place it nearly on the same footing. Various other libraries were founded at Rome by Augus-

tus and his successors; the most important, perhaps, being the Ulpian library of the emperor Trajan. The private collections of Emilius Paulus, Sulla, Lucullus (already mentioned), and Cicero, are well known to every student of the classics.

The downfall first of the western, and subsequently of the eastern empire, involved the destruction or dispersion of these ancient libraries. The warlike hordes by whom these once mighty monarchies were overthrown had neither time nor inclination for the cultivation of letters; but even in the darkest of the dark ages, the lamp of learning continued to shine, if with a feeble, yet still with a steady light. Within the sheltering walls of the monasteries, the books which had escaped destruction, the salvage, if we may so express it, of the general wreck, found a safe asylum; and not only were they carefully preserved, but so multiplied by the industry of the transcriber, as to be placed beyond all risk of loss for the future. Amongst the conventual libraries of the middle ages specially worthy of notice are those of Christ church, and of the monastery of St. Augustine, Canterbury; of the abbeys of Fleury and Clugni, in France; of Monte Cassino, in Italy; and of St. Gall, in Switzerland. Private collectors, too, existed then as now, though, of course, their number was small. Amongst these, Richard de Bury, bishop of Durham, holds a distinguished place.

The revival of learning in the 14th and 15th centuries, followed immediately by the invention of the art of printing, led naturally to a vast increase in the production of books, and introduced a new era in the history of public libraries. The number of these establishments which have since sprung into existence is immense, and is constantly increasing; so much so that a bare list of them would far exceed the limits of an article like the present. All, therefore, that we propose to do is to give a short account of the most important and interesting amongst them.

First among the libraries of Great Britain, and second to few, if to any abroad, is that of the British museum. For an account of this magnificent collection, see British Museum. Next in rank is the Bodleian library at Oxford, which has also been already described. See Bodleyan or Bodleian Library. The third and fourth places are occupied by the public, or university, library of Cambridge, and the library of the faculty of advocates at Edinburgh, which are nearly on a par as regards extent and value. A more particular notice of the latter will be found under the heading Advocates' Library; the number of volumes which it contains at present may be stated as not less than 265,000. The library of Trinity college, Dublin, with about 192,000 vols., is the largest and most valuable in Ireland. These five libraries have long been, and still are, entitled by statute to a copy of every book published in the empire; the act of parliament by which the privilege is at present regulated is the 5 and 6 Vict. c. 45. Besides the above, six other libraries had been in the enjoyment of the same privilege up to the year 1836. By the act 6 and 7 Will. IV. c. 110, which was then passed, the number was reduced from eleven to five; compensation for the loss of the privilege being allowed, in the form of an annual grant of money charged on the consolidated fund. The amount of this grant was, in each case, determined by a computation of the average annual value of the books received during the three years immediately preceding the passing of the act. The names of the libraries referred to, with the number of volumes they at present contain, and the annual sum received in lieu of the privilege, are as follows:

Edinburgh University	140,000	£575
Glasgow "	100,000	707
St. Andrews "	70,000	630
Aberdeen "	50,000*	320
King's Inn's, Dublin,	60,000	433
Sion College, London,	55,000	363

The minor libraries of Great Britain are so numerous that a mere list of their names would exceed the limits within which an article like the present must be confined. Amongst those deserving special notice are the library of the society of writers to the signet, Edinburgh, containing upwards of 70,000 vols.; the Hunterian library, Glasgow, with about 13,000 vols., including many choice specimens of early printing; the Chetham library, Manchester, upwards of 18,000 vols.; Dr. Williams's library, Red Cross street, London, with more than 20,000 vols., freely opened to the public; the archiepiscopal library at Lambeth, containing at least 27,000 vols.; Marsh's library, Dublin, with about 18,000 vols.; the library of the Dublin royal society; and the libraries belonging to the different colleges at Oxford and Cambridge, some of which are of considerable extent and value. The public libraries' acts have been adopted by several of the large towns in Britain—Manchester, Birmingham, Liverpool, and Glasgow being the most important. The free libraries established in these places under the provisions of the acts just named are in a flourishing condition. Of private libraries in England, it will be sufficient to name that of earl Spencer, at Althorp, containing upwards of 50,000 vols., many of extreme rarity and value, and all in admirable condition.

The great national library of France, *la Bibliothèque du Roi* as it used to be called, *la Bibliothèque Nationale* as it is called at present, is one of the largest and most valu-

* About three-fourths of these are lodged in King's college, and the remainder in Marischal college.

able collections of books and manuscripts in the world. Attempts to form a library had been made by Louis XI. and his successors with considerable success; but the appointment of De Thou to the office of chief librarian by Henry IV. may be regarded as the foundation of the establishment as it now exists. The number of printed volumes contained in it is estimated at nearly 2,500,000, and of manuscripts at about 150,000. Amongst libraries of the second class in Paris, the arsenal library with 300,000 vols., the library of Ste. Geneviève with 200,000, and the Mazarine library with 160,000, are the chief. Many excellent libraries are to be found in the provincial towns of France, particularly at Rouen, Bordeaux, and Lyons. All the Paris arrondissements have free libraries.

Italy is rich in important libraries, amongst which that of the Vatican at Rome stands pre-eminent. The number of printed volumes is only about 200,000; but in the manuscript department the number amounts to no less than 25,000, the finest collection in the world. The Casanata library, also at Rome, is said to contain upwards of 120,000 vols. The Ambrosian library, at Milan, has a collection of nearly 140,000 vols.; and the Brera library, of the same city, one of about 180,000. At Florence we find the Laurentian library, consisting almost entirely of manuscripts; and the Magliabechi library, with about 200,000 vols. Amongst the other libraries of Italy worthy of notice are the royal library at Naples, with 200,000 vols., and that of St. Mark at Venice, with 120,000, and 10,000 manuscripts.

The principal libraries of Spain are the biblioteca nacional at Madrid, numbering nearly 430,000 vols., and the library of the Escorial, which has been already noticed. See Escurial.—Of the libraries of Portugal, no trustworthy statistics can be obtained.

The imperial library at Vienna, founded by the emperor Frederick III., in the year 1440, is a noble collection of not fewer than 400,000 vols.; of which 15,000 are of the class called incunabula, or books printed before the year 1500. The royal library at Munich owes its origin to Albert V., duke of Bavaria, about the middle of the 16th century. The number of volumes is estimated at 900,000, including 13,000 incunabula, and 22,000 manuscripts. It is worthily lodged in the splendid building erected by the late king, Ludwig I., in the Ludwig strasse. The royal library at Dresden is a collection of about 500,000 vols., amongst which are included some of the scarcest specimens of early printing, amongst others the Mainz Psalter of 1457, the first book printed with a date. The foundation of the royal library at Berlin dates from about the year 1650. It now extends to about 700,000 vols. of printed books and 15,000 vols. of manuscripts, including amongst the latter many precious relics of Luther and the other leaders of the reformation. Of the other libraries of Germany, it will perhaps be enough to notice that of the university of Göttingen, with upwards of 500,000 vols., and the ducal library of Wolfenbüttel, with about 270,000. Strassburg, founded 1871, has over 513,000 books and MSS.

In Holland, the principal library is the royal library at the Hague, containing rather more than 200,000 vols., of which about 1,500 are good specimens of early printing.

The royal library at Copenhagen was founded about the middle of the 16th century. Its contents are now estimated at nearly 550,000 vols. The university library possesses nearly 200,000 vols., and Classen's library, also in Copenhagen, about 30,000.

In Sweden, the largest library is that of the university of Upsala, consisting of nearly 200,000 vols. One of its chief treasures is the famous manuscript of the Gothic gospels of Ulfilas, commonly known as the Codex Argenteus. The royal library at Stockholm is next in size, numbering upwards of 96,000 vols.

The library of the university of Christiana in Norway, founded in 1811, contains upwards of 200,000 vols.

The imperial library of St. Petersburg was founded about the beginning of the 18th century. In the year 1795 it was largely increased by the addition of the Zaluski library of Warsaw, which was seized and carried off to St. Petersburg by Suwaroff. At present, the total number of volumes is estimated at 900,000, and about 35,000 manuscripts.

In the United States of America, though there are no libraries equaling those of the first rank in Europe, there are still not a few of considerable magnitude and value. The oldest and one of the largest among them is that of Harvard college, Cambridge, Mass., which has been in existence for more than 200 years, and contains about 291,000 volumes. Libraries are also attached to the other collegiate institutions of the country. The Astor library, New York, named after its liberal founder, was opened in 1854 with a collection of about 80,000 volumes, since increased to upwards of 200,000. It is in the fullest sense a free public library. The library of congress, the only library supported by government to which a copy of every copyright book must be sent, is naturally the largest in the states, numbering about 526,000 volumes and 170,000 pamphlets. The Smithsonian institution at Washington embraces in its plan the formation of an extensive library. But little progress has been made in carrying out this part of the scheme. The proprietary libraries are numerous, and several of them are of considerable extent; that of Philadelphia, in the foundation of which Franklin was largely concerned, numbers upwards of 100,000 volumes; and that of the Boston atheneum, founded in 1806, has 103,000. The Boston public library has, in 20 years, become the second largest, and perhaps the most widely useful library in the states; it now numbers 260,000 volumes. The New York mercantile library possesses 150,000 volumes.

An important conference of librarians was held in London in 1877: see its *Transactions and Proceedings* (Lond. 1878).

LIBRARIES (*ante*). The first library foundation in America was established in 1621 through a benefaction, on the part of an unknown person in London, to the Henrico college, organized by the colonists of Jamestown, Va. The gift comprised "a small Bible, with a cover richly wrought; a great church Bible; the Booke of Common Prayer; . . . S. Augustine *De Civitate Dei;* Master Perkins, his workes; and an exact map of America." Other volumes were presented by persons in England and in the colonies; but on Mar. 22, 1622, the settlements on the James were swept away by the torch and tomahawk of the savage, and the library ceased to exist. The next attempt at the formation of a library occurred in Cambridge, Mass., in the case of the Harvard college endowment in 1638. This collection increased slowly during the next century and a quarter, and in 1764 numbered about 5,000 volumes. On Jan. 24 of that year it was totally destroyed by fire. In the meantime there had been formed in Philadelphia the nucleus of the institution which has existed to the present day, and is now known under the name of the "Philadelphia library company." It grew originally out of a debating society, of which Benjamin Franklin was one of the founders, and which he terms "the mother of all the North American subscription libraries." This society was made up of reading men, who turned their own books into a common stock; and, as opportunity offered, purchased others, importing the latter from London, and had a number presented to them. This beginning of what was to become one of the great libraries of the western world was in 1729–30. Ten years later the books were removed to a room in the state-house; in 1773 they were again transferred, this time to Carpenters' hall. In 1742 the company was regularly incorporated; and in 1769 and 1771, the Union library company, the Association library company, and the Amicable company were merged with it, the entire corporation assuming the name which it has ever since borne. The first building erected in the United States to be devoted to the uses of a public library was that of the Loganian library (1745–50), which was the gift of James Logan to the city of Philadelphia, and stood in Sixth street, between Chestnut and Walnut streets. The Loganian library passed, in 1792, under the control of the Philadelphia library company. The New York society library (New York, 1700), the Redwood library (Newport, R. I., 1747), and the Providence library (Providence, R. I., 1753), were among the principal libraries founded in the colonies before the revolution. In 1765 a circulating library was established in Boston, Mass., by one John Mein, a bookseller, which numbered about 1200 volumes, had a printed catalogue, and was supported by an annual subscription of 28s. from each member. The will of John Oxenbridge of Boston, dated Jan. 12, 1673–4, makes mention of a bequest of books to the "public library;" and reference to such an institution also occurs in the town records for Mar. 11, 1695; no other information is afforded concerning it.

The introduction of the system of school libraries originated in the state of New York in 1835, when a law was passed appropriating $55,000 a year for the purchase of books for the different school districts, and requiring an equal amount to be raised by taxation to be added to that sum and applied to the same purpose. The plan continued in successful operation until 1853, when these libraries contained an aggregate of 1,604,210 volumes. From that period it was not sustained; the number of volumes decreased, and had fallen off one-third in 1875; and the usefulness of the institution was apparently over. In Massachusetts the school library system went into effect in 1837, but existed only about twelve years, when they were superseded by free town libraries. In some of the states which appropriated sums for the foundation and sustenance of district school libraries, they flourished from the first, and have continued to answer their purpose satisfactorily up to the present time. Such has been the case in California, Iowa, Illinois, and New Jersey. In other states, as in New York, they were popular and well-conducted for some years, but gradually fell into a decline, out of which they were gradually brought again to a healthy condition; as in Connecticut, Rhode Island, Indiana, Ohio, and Wisconsin. In the states of Maine, Missouri, Oregon, Pennsylvania, Kansas, Virginia, Kentucky, Minnesota, and others, the effort to establish these libraries has not met with success; although in most instances supported by special legislation in its favor.

Mercantile libraries started with those of Boston, Mar. 11, 1820, and New York, Nov. 9, 1820, which were followed rapidly by similar organizations in other states. Such institutions have been usually founded by merchants' clerks, on a basis of annual dues and fees on entrance. They have not generally been self-supporting on this foundation, but have owed whatever prosperity they have achieved to liberal gifts from individuals. Young men's Christian associations, though covering a broader field, include a public library system in their scheme of work. The first of these associations in America was established in Boston in 1851, the idea having originated in London in 1844. Their number in the United States and Canada had reached 834 in 1883. Of these, 312 owned libraries containing 243,000 volumes. There were, 1881, 52 women's Christian associations, with 61,000 volumes in their libraries.—Of the college libraries reported in 1882, 330 contributed statistics, and showed, in the aggregate, 2,515,000 volumes. The number of prominent theological libraries was 129, reporting 720,526 volumes. 17 principal law libraries, not including those of the general government, numbered 88,646 volumes; 37 medical libraries contained 40,387 volumes; 30 scientific libraries, 119,523 volumes; and 749 secondary institutions reported libraries. The

total number of public libraries in the United States in 1876 was 3,647, containing 12,276,964 volumes. As the average increase was about 1,000,000 volumes per year, the number in 1886 would probably be over 21,000,000. The New York apprentices' library contains over 68,000 volumes. The free circulating library, established 1879, has over 10,000 volumes ; the Ottendorfer branch, 8,800. Over 95,000 books were circulated 1884, and but 3 lost.

The leading public libraries of the country in size and importance are the Astor library (q.v.), New York; Atheneum, Boston; library of congress, Washington; Lenox, New York; Philadelphia library company, Philadelphia; public, Boston; and society, New York. The Boston atheneum originated in 1805 in the anthology society, and was at first a reading-room. In 1807 it was incorporated and received its present designation; and seven years later it contained 8,209 volumes. The circulation of its books among proprietors began to be permitted in 1827, when it contained about 20,000 volumes. The present edifice of this institution was erected and opened for use in 1849, and cost $200,000. The library contained 105,000 volumes in 1876.—The library of congress was founded on the establishment of the seat of government in Washington in 1800, and at the session in Dec., 1801, Thomas Jefferson, who presided, took a warm and practical interest in the progress of the library. At this session, also, John Randolph, of a special committee, made a report which formed the basis of an act of congress, the first of that nature, organizing the library. On Aug. 25, 1814, the capitol was burned by the British, and the library, which contained about 3,000 volumes, was entirely destroyed. During the same year congress purchased the private library of ex-president Jefferson, numbering about 6,700 volumes, for $23,950. An annual appropriation being made for the purchase of books, the library continued to grow slowly, and in 1851 numbered 55,000 volumes. On Dec. 24 of that year, a second conflagration destroyed all but 20,000 volumes, which fortunately formed the more valuable portion, but from that period the library continued to increase more rapidly than ever before. In 1866 the collection of books of the Smithsonian institution was transferred to the shelves of the library of congress, an increase of 40,000 volumes. In the following year it was still further enriched through the purchase by congress of the historical library left by Peter Force, of Washington, at a cost of $100,000, and which numbered nearly 60,000 titles in books, pamphlets, and manuscripts, besides the unpublished materials of the *Documentary History of the United States*, of which Mr. Force had issued nine folio volumes. The act of congress, passed Aug. 10, 1846, made it incumbent on the author of every book, map, print, etc., for which a copyright was secured, to forward, within three months after publication, one copy each to the librarians of the Smithsonian institution and congressional library for the use of these libraries. The average number of deposits under this act amount to 25,000 articles per annum. In 1861 the annual appropriation for the purchase of books was increased by congress from $7,000 to $10,000. The library of congress contained, in 1885, 526,000 volumes and about 170,000 pamphlets.—The Lenox library, New York city, was incorporated in 1870, and was the gift to the city of James Lenox, esq., a wealthy gentleman of recognized bibliographical attainments, and whose private collection, numbering about 15,000 volumes, was exceptionally rich in the department of editions of the Scriptures and that of American history. Mr. Lenox's gift included the handsome and commodious library building, with the land on which it was erected; the rare collection of books above mentioned; and a considerable gallery of ancient and modern paintings. The entire sum of money represented in this library is doubtless considerably more than $1,000,000. Of this sum, $212,000 was invested as a permanent fund for the sustenance of the library and its future increase.—The Philadelphia library remained in Carpenters' hall until 1790, when it was removed to a building in Fifth street; and thence, in 1880, to its present quarters, corner Thirteenth and Locust streets, Philadelphia. Including the Loganian library, it numbered in 1885 about 145,000 volumes. The present building was constructed by subscription, to which the late Joseph Fisher gave by bequest the sum of $54,488.12. In 1869 Dr. James Rush bequeathed his large estate, valued at over $1,000,000, for the purpose of erecting a fire-proof building, to be called the Ridgway branch of the Philadelphia library; and this structure of granite was erected at the corner of Broad and Christian streets, and devoted to the purposes for which it was designed.—The Boston public library was founded by act of legislature passed in 1848; and was organized in 1852, with Edward Everett as first president. Money and books had already been given to the institution by prominent citizens, and in the same year (1852) Mr. Joshua Bates of London presented to it the sum of $50,000. The library was opened to the public, Mar. 20, 1854, in a building applied to the purpose, in Mason street; and in 1858 the building erected for its permanent home was opened, both as a reading-room and circulating library. The reference library (Bates's hall) was opened in 1861 with about 74,000 volumes. The whole number of books in the library in 1884, was about 440,000 volumes.—The New York society library was founded in 1700 under lord Bellomont, governor of the province, being then known as the city or public library, and contained in the city hall. It was probably the earliest loan library established in America, and became particularly valuable through being enriched by the gift of the collection of rev. Dr. Millington, of Newington, England, presented to the colonies of America, and deposited in the city hall of New York, by the society for the propagation of the gospel; this collection numbered 1642 volumes. In 1754 the society

library proper was formed on a basis of membership subscription, and the first purchase of books, made in London, was deposited with the Millington collection. This library contained in all, in 1776, about 4,000 volumes. It continued in the city hall until 1795, when a building was erected for its use in Nassau street. In 1840 a new building was put up on Broadway (corner Leonard street), in which the library was placed, and where it remained until 1853, when the property was sold and the books removed to the Bible house. The final transfer to the present society library building in University place was made in 1856. In 1885 the number of books in the society library was about 90,000.—All the large American cities are supplied with public libraries of varying degrees of completeness and efficiency. The public library of Cincinnati, Ohio, originated from a concentration of the school libraries of that city; and occupied its present building, constructed for the purpose, in 1874, and in 1884 it contained 139,000 volumes, with capacity for 250,000. Its actual date of foundation is Mar. 18, 1867, when a state law organized it on its present basis. The mercantile library association of St. Louis, Mo., are in possession of the largest public library in that city, numbering in 1884, 60,000 volumes. It was founded in 1846. The principal public library of Baltimore, Md., is that of the Peabody institute, founded in 1857, and opened to use in 1861, and which contained, in 1884, 82,000 volumes. The San Francisco mercantile library, the leading one in that city, was founded in 1853, and in 1883 contained 51,000 volumes. The Brooklyn, N. Y., public library was founded in 1857, it contained 85,000 volumes in 1885. In the same city the Long Island historical society, founded in 1863, entered its present building in 1880. In 1884 it contained 27,000 bound volumes and 44,000 pamphlets, besides valuable manuscripts, paintings, and curiosities. The library of the Chicago historical society and the young men's association library were both destroyed in the great fires of 1871 and '74, but the former has since been slowly recuperating. The public library of that city resulted from the general public sympathy felt on account of these losses, and originated in generous donations on the part of authors and others, at home and abroad. This library numbered nearly 107,000 volumes in 1884.—The libraries of the different departments of the general government at Washington numbered, in 1876, 656,070 volumes and 116,505 pamphlets. The state and territorial libraries, 47 in number, comprised in the same year 834,219 volumes. The number of historical societies in the United States was 77, and their libraries included 482,035 volumes, exclusive of a very large number of valuable pamphlets. The number of mercantile libraries, young men's associations, and atheneums reported was 64, numbering 1,055,903 volumes.—Not to enter at any length on the nature of the management of public libraries in the United States, it may be remarked that in recent years there has been exhibited a more general tendency towards the classification fo books by subjects, and in the direction of the system of card-cataloguing. These have taken the place of the ancient method of alphabetical arrangement by authors, and the manuscript, or printed catalogue. Even in comparatively small collections the author system of arrangement has been found inadequate when followed exclusively; while the elasticity of the card-catalogue, whether of authors or subjects, has approved itself fully, in the minds of thoughtful librarians, as a simplification of their duties in this regard, while avoiding many inconveniences and difficulties which prove insuperable in the application of other methods. Adopted in connection with an occasional printed catalogue, this is found to answer to the wants both of those who desire general information as to the contents of a library, and those who wish to keep pace with its most recent acquisitions.

LIBRARIES' ACTS. Though there is no systematic provision of libraries for public use at the expense of the state, except the British museum library in London, an attempt has been made by the legislature of late years to empower districts to establish libraries, and to tax the inhabitants for that purpose. The first act, 13 and 14 Vict. c. 65, passed in 1850 for England, has been repealed by subsequent amended and extended acts, the last of which is 29 and 30 Vict. c. 114, in 1866. It is applicable to any burgh, district, or parish, whatever the amount of the population; a meeting of the rate-payers may be obtained by the requisition of ten of their number addressed to the town-council, or other local board; and the adoption of the act is decided by a simple majority of those present at the meeting. The rate to be levied in all such cases is not to exceed 1d. in the pound. All such libraries are to be open to the public free of all charge. A similar act extended the first English act to Ireland and Scotland; but by amended acts, passed in 1867 and 1871, Scotland has been placed on a similar footing to England for the adoption of the act.

LIBRARIES, MILITARY, are either garrison or regimental. The former comprise large collections of books, with newspapers, games, lectures, etc., in commodious rooms, and are intended to win soldiers from the gin-shops and vicious haunts which are ever prevalent in garrison towns. Attempts have been made to provide the soldiers with books, both for instruction and amusement; but statistics prove that the men patronize few besides fiction and travels, and religious books not at all. Regimental libraries are smaller collections of books, which accompany regiments in their various movements. The charge for military libraries in the British army was for 1876–77 the sum of £4,085.

LIBRATION (from Lat. *libra*, a balance, meaning a balancing or oscillating motion), a term applied to certain phenomena of the moon's motion. The moon's librations (or, more properly, *apparent* librations) are of three kinds—libration in longitude, latitude, and the diurnal libration. If the moon's rotation in her orbit were uniform, as her rotation on her axis is, we should always see exactly the same portion of her surface, but as this is not the case, there are two small strips of surface running from pole to pole, on the e. and w. sides, which become alternately visible; this is called the moon's *longitudinal libration.* The *libration in latitude* arises from the moon's axis not being perpendicular to her orbit, in consequence of which a portion of her surface round the north pole is visible during one-half, and a corresponding portion round the south pole during the other half of her revolution in her orbit. The *diurnal libration* hardly deserves the name, and is simply a consequence of the observer's position on the surface of the earth, and not at the center: it consists in the gradual disappearance of certain points on one edge of the moon's disk as she approaches her culmination, and the appearance of new points on her opposite border as she descends. The first and third of these librations were discovered by Galileo, and the second by Hevelius.

LIBRI-CARRUCCI, Guillaume Brutus Icilius Timoleon, Count, French mathematician and bibliographer, son of an Italian refugee, who was condemned at Lyons in 1816 for forgery, was b. at Florence Jan. 2, 1803. Having early devoted himself to the study of mathematics, he became professor in the university of Pisa, where he contributed to the transactions of scientific societies a number of remarkable papers on *The Theory of Numbers* (1820); *Some Points of Analysis* (1823); *The General Resolution of Indeterminate Equations of the First Degree* (1826); etc.

After 1830, having been compromised in the political movements, he was obliged to leave Tuscany, and went to France as refugee. He there found a patron in Arago (whom he afterwards attacked in the most spiteful manner); was naturalized, and in a short time elected member of the academy of sciences, professor of analytics at the Sorbonne, chief inspector of public instruction, and superintendent of the state libraries. He was decorated with the legion of honor, and appointed editor of the *Journal des Savants*, etc. Libri-Carrucci's works at this period are varied and numerous. In particular may be mentioned his *History of Mathematical Science in Italy from the Renaissance to the End of the 17th Century* (1838–41, 4 vols. 8vo), in which he displayed much acuteness and erudition. He was besides a most determined bibliomaniac, and found means of collecting a library for himself which contained such a rich stock of *incunabula* of all kinds, and of the greatest typographical curiosities, that several public sales, which he got up for his own benefit and of which each realized from £4,000 to £5,000, did not in the least degree diminish his collection. In consequence of the remarkable phenomenon of a library remaining complete in spite of repeated sales, Libri-Carrucci began to be suspected of making use of his special position to abstract books and valuable MSS. from the public libraries. A report had even been secretly prepared on the subject by the public procurator, and communicated to M. Guizot to await his decision. The objects abstracted between 1842 and 1847 were approximately valued at £20,000. This document was dated Feb. 4, 1848, and was found in the foreign office when the revolution broke out in that month. The case was immediately taken up by the courts, and after a long and careful examination, the accused, who, in the meantime, had fled to England, was condemned June, 1850, to ten years' imprisonment, to degradation, and the loss of his employments. The process created a great sensation, and gave rise to an immense deal of writing for and against the condemned. The most important is an article by P. Merimée, *Le Procès Libri*, in the *Revue des Deux Mondes* (1852), for which the writer was imprisoned, as having, in defense of a "book-stealer," slandered and insulted the French judicature.

Libri-Carrucci continued for two or three years to address letters and pamphlets to persons in France exclaiming against his condemnation in the highest tones of injured innocence. The efforts of M. Merimée in behalf of Libri-Carrucci, and a petition in his favor, addressed to the senate in 1861, only had the effect of bringing out still more damnatory facts regarding both him and his family. He died Sept. 28, 1869.

LIBUR'NIA, in ancient geography, a mountainous district of Illyricum, on the Adriatic coast, now a part of Croatia and Dalmatia. From early times the Liburni were daring seamen, and were in the possession of Corcyra, Issa, and other islands when the Greeks took these places. They were noted pirates, and their privateers, with a large lateen sail, were for centuries the terror of the seas. The galleys of the Liburni were noted for their light construction and swiftness, and the Romans, adopting this style of naval architecture, called all fast sailing vessels *naves Liburnæ.* By means of these light galleys Augustus gained the battle of Actium. The only important towns in Liburnia were Jadera and Scardona.

LIBYA, the name given by the oldest geographers to Africa. In Homer and Hesiod, it denoted the whole of this quarter of the globe, except Egypt; in Herodotus, occasionally, the entire continent; but it is also applied by others in a more restricted sense, to the northern part of the country, from Egypt and the Arabian gulf westward to Mt. Atlas. The great sandy tract, of which the Sahara forms the principal part, was called the

Libyan desert. To what extent it was known to the ancients is not very clearly ascertained. See AFRICA.

LIB'YAN DESERT (LIBYA, *ante*), the name often given by the ancients to the whole of Africa, but generally applied to that part of the Sahara, or Great Desert, lying e. of Fezzan and the country of the Tibboos. The region is probably about 1000 m. long by 500 or 600 m. in breadth. It contains a number of oases, or fertile tracts, islands of verdure in the vast sands, which support a sparse population; but the surface generally consists of irreclaimable sandy or gravelly plains, separated by low rocky ridges, or shelving down in a series of terraces toward the Mediterranean.

LIB'YANS, people of Libya, a name given by the Greeks to Africa, probably from the name of the people whom they found in possession of the northern part of the continent to the w. of Egypt, and who are believed to have been the *Lehabim* or *Lubim* of the Hebrew Scriptures. These Lubim seem to have consisted of wandering tribes, sometimes in alliance with Egypt, at others with the Ethiopians. In the time of Canbyses they formed part of the Persian empire. They are mentioned by the prophet Daniel in connection with the Ethiopians and Cushites. Herodotus divided the natives of Africa into two classes, the Libyans and the Ethiopians, one occupying the northern, the other the southern part. But the Romans limited the term Libya to that part of Africa which extended along the Mediterranean from the Greater Syrtis to Egypt, and stretching inland to the deserts. This was the Libya Proper of the New Testament, Acts ii. 10. Lepsius and other Egyptologists suppose that they occupied even Egypt, until driven out by the Egyptians, who emigrated from Asia. In remote antiquity the people were civilized, and powerful by sea and land. They often invaded Egypt until their power on the sea was broken by Thothmes III., 1600 B.C.; but by land they continued to harass the Egyptains and desolate the country. In 1400 B.C. they joined the Pelasgic nations on the northern coasts of the Mediterranean, and, in connection with the Tyrrhenians and Acheans, they invaded and nearly conquered lower Egypt, under their king Maurmuin, but they were stopped in central Egypt, and defeated by Rameses II. They were eventually subdued by the Carthaginians, and their country has successively passed into the hands of the Greeks, Romans, Saracens, and Turks.

LIB'YAN SEA, the name given in ancient geography to that part of the Mediterranean which lies between the island of Crete and the coast of Africa.

LICA'TA. See ALICATA, *ante*.

LICENSE. See GAME, PUBLIC-HOUSES, MARRIAGE, ALIEN.

LICENSE, in law, an authority given by one person or party to another to do certain acts. Licenses are either *executory*, where the act authorized has not been done, or *executed*, where it has been done. At law all licences may be revoked by the grantor, unless the license be coupled with an interest, and the same rule prevails in equity courts, except that the latter sometimes hold that an executed license, where the licenses has been put to expense, is not revocable at the pleasure of the grantor. Thus, where a licensee who has been granted some privilege in connection with another's land, on the strength of his license has been induced to incur expeuse, at law his license is still held to be revocable, as a contrary ruling would be equivalent to creating an interest in land without writing, against the provisions of the statute of frauds. A court of equity regards such an executed license as an executed verbal contract, one of the parties to which, the licensee, has gone too far to be put back into his former position as to the other party. But the revocation of an executed license will save the licensee harmless from liability or responsibility for such acts as he has done according to his license. A license is either *express*, i.e., granted expressly, or *implied* from the acts of the grantor. A license in regard to land is not to beconfused with an easement which is an indefeasible interest in land, irrespective of the will of the owner of the servient estate, or with a lease which confers a right to the profits of land. An easement, moreover, can be created only by grant or prescription, while a license authorized orally is good. An executed license which puts an end to an easement of the grantor in the licensee's land is irrevocable. The most common licenses in the United States are licenses to sell liquor, to engage in certain occupations, etc. Such licenses are a matter of statutory regulation. A license in international law is an authority given by a state engaged in war to its subjects or the subjects of the state with which it is at war, to engage in a trade forbidden in time of war. The right to give such licenses is original with the sovereign power, and they may be given by commanding officers in the army or navy as its delegates. License *in pleading* is a plea by the defendant in an action of trespass that the owner of the freehold gave his permission to the alleged act of trespass. A license in *patent law* is a permission to make or sell a patented article in a specified locality, or anywhere in the United States.

LICENSE, in music. The liberty which a composer takes in deviating from the rules of his art, and which is often marked with the words *con licenza* in order to indicate that it has been introduced intentionally to produce some unusual effect. Many licenses occur, however, in the works of great composers like Mendelssohn, Bach, and Haydn, where the notice *con licenza* is omitted, but it will generally be found that they

are introduced for artistic purposes, and to strengthen the harmony of some ineffective passage.

LICEN'TIATE (from Lat. *licet*, it is lawful), one of the four ancient university degrees. It is no longer in use in England, except at Cambridge, which confers the degree of licentiate of medicine. In France and Germany, however, where it is more general, a licentiate is a person who, having undergone the prescribed examination, has received permission to deliver lectures. The degree, as an honor, is intermediate between *bachelor of arts* and *doctor*

LICEN'TIATE, among Presbyterians, is a person authorized by a presbytery or similar body to preach, and who thus becomes eligible to a pastoral charge.

LI'CHEN, a papular disease of the skin. There are two species, viz., *L. simplex* and *L. agrius*, the latter of which may be regarded as a very aggravated form of the former. *L. simplex* consists in an eruption of minute papulæ of a red color, which never contain a fluid, and are distributed irregularly over the body. They appear first on the face and arms, then extend to the trunk and lower extremities, and are accompanied with a sense of heat, itching, and tingling. In a mild case, the disease is over in a week, but sometimes one crop of papulæ succeeds another for many weeks or months. In *L. agrius*, the papulæ are more pointed at the summit, and are of a bright-red color, with more or less redness extending round them. In this form of the disease, the general health is usually affected, in consequence of loss of sleep and general irritation.

It is often hard to say what is the cause of lichen. The simpler form is often dependent in children on intestinal irritation, while in other cases it may frequently be traced to exposure to heat, or errors of diet. The severe form is also occasioned by extreme heat and by the abuse of spirituous drinks.

In ordinary cases an antiphlogistic diet, a few gentle aperients, and two or three tepid baths, are all that is required. When the disease assumes a chronic character, a tonic treatment (bark and the mineral acids) is necessary; and in very obstinate cases, small doses (3 to 5 minims, well diluted) of Fowler's arsenical solution may be given with advantage.

LICHENIN is a starch-like body, found in Iceland moss and other lichens, from which it is extracted by digesting the moss in a cold, weak solution of carbonate of soda for some time, and then boiling. By this process the lichenin is dissolved, and on cooling, separates as a colorless jelly. According to Gorup-Besanez (*Lehrbuch der organischen Chemie*, 1860, p. 514), it sometimes assumes a blue, and sometimes a greenish tint, when treated with iodine. In most of its relations it corresponds with ordinary starch.

LICHENS, a natural order of acotyledonous plants, allied to fungi and to algæ. They are *thallogenous*, consisting mainly of a *thallus* (q.v.), and without stem and leaves; wholly cellular, and nourished through their whole surface by the medium in which they live, which is air, and not water, although a certain amount of moisture in the air is always necessary to their active growth; and when the air becomes very dry, they become dormant, ready to resume their growth on the return of more favorable weather. The thallus of some is pulverulent; that of others is crustaceous; of others, leaf-like; of others, fibrous. Reproduction takes place by spores, usually contained in sacs (*asci, thecæ*), embodied in repositories of various form, often shield-like or disk-like, called *apothecia* (or shields), which arise from the outer layer of the thallus, and are generally very different in color from the thallus. But there is also another mode of propagation by *gonidia*, separated cells of the inner or medullary layer of the thallus, usually spherical or nearly so, and always of a green color. This seems to be a provision for the propagation of lichens, even in circumstances—as of the absence of light—unfavorable to the formation of thecæ and spores. Lichens are plants of long life, differing in this very widely from fungi. They are most widely diffused, growing equally in the warmest and the coldest regions. On the utmost limits of vegetation, in very high latitudes, or on the very highest mountains, they cover the soil in great masses. Some grow on earth, others on stones, others on the bark of trees, and some of the tropical species on evergreen leaves. In the great economy of nature they serve for the first commencement of vegetation, especially to prepare the soil for plants of higher organization. The gray, yellow, and brown stains on old walls are produced by minute lichens, which have begun to vegetate where nothing else could. The curiously scattered apothecia of some present the appearance of written characters often seen on the bark of trees. Some hang as tufts or shaggy beards from old trees; some grow amidst heaths and mosses to cover the soil of the most frigid regions. Lichens contain a peculiar gelatinous substance resembling starch, and called *lichenin* or *lichen starch;* generally also a bitter substance called *cetrarine;* resin; a red, bright yellow, or brown coloring-matter; oxalate and phosphate of lime, etc.; and are therefore adapted to purposes of domestic economy, medicine, and the arts. Some are used for food, as Iceland moss (q.v.) and *tripe de roche* (q.v.); some afford food for cattle, as reindeer moss (q.v.); some are medicinal, as Iceland moss; some afford dye-stuffs, as archil (q.v.), cudbear (q.v.), etc.

LICH'FIELD, an ancient episcopal city of Staffordshire, England, a municipal and parliamentary borough and county in itself, is situated 17 m. s.e. of Stafford, and 115 n.w. of London. Its chief edifice is the cathedral, part of which is in the early English style. It has three towers, each surmounted by a spire, and is profuse and elaborate in its ornamentation. The free grammar-school, in which Addison, Ashmole, Johnson, and Garrick were educated, has an income of about £100 a year, and has 9 exhibitions, tenable for 3 years. Considerable brewing is carried on. Pop. '81, 8,360. Lichfield returns one member to parliament.

LICHTENBERG, GEORG CHRISTOPH, 1742–99; b. Ober-Ramstadt, near Darmstadt; taught first by his father mathematics and physical studies; studied at Darmstadt and Göttingen, and appointed professor in the university of Göttingen in 1770. In 1777 was professor of experimental philosophy. He had before this visited Great Britain and made himself master of English literature. In his latter days he was subject to hypochondria, which led him to withdraw from all society other than that of his wife and five children. His malady did not interrupt his studies or his extensive epistolary correspondence. His works were collected in 9 volumes. Among the most important were *Ueber Physiognomik wider die Physiognomen; Ueber die Pronunciation der Schöpse des alten Griechenland.* His *Erklärung der Hogarthischen Kupferstiche*, which was unfinished at his death, but published afterwards, was a work of great merit. The author shows keen wit, comic power, and severe satire.

LICHTENFELS, a t. in Greenland, on the s.w. coast, lat. 64° n., long. 52° w., founded by the Moravians, or Bohemian brotherhood, in 1758, and inhabited chiefly by Danes.

LICINIUS, a Roman emperor. See CONSTANTINE I.

LICK, JAMES, 1796–1876; b. Fredericksburg, Lebanon co., Penn.; learned the trade of a pianoforte manufacturer in Philadelphia, and followed the business successively in New York, in Buenos Ayres, Valparaiso, and different places in Peru. In 1847 he settled in San Francisco, bringing with him a capital of $30,000, which he invested in real estate in that city. The profits on this investment made him very wealthy, and in 1874 he placed $2,000,000 from his estate in the hands of seven trustees, to be devoted to certain specified public and charitable uses. In 1875 Mr. Lick desired to make some changes in the schedule of his gifts, to which the trustees were doubtful of their right to give assent. At his request they resigned, and other men were selected by him to fill their places. The next year he died, and litigation followed on behalf of his son and other heirs, who advanced a claim upon the property. The issue was settled in 1878 by an agreement on the part of the trustees to pay the son, John H. Lick, $385,000 in addition to the sum intended for him by his father, he agreeing to divide $72,000 of the amount between the other heirs. This left the list of Mr. Lick's bequests as follows: To the university of California, for the erection of an observatory, and procuring therefor a telescope superior to and more powerful than any ever before constructed, $700,000; to the Protestant orphan asylum in San Francisco, $25,000; to the city of San José, for the purpose of erecting and supporting a non-sectarian orphan asylum, $25,000; to the ladies' relief and protective association of San Francisco, $25,000; to the mechanics' institute of San Francisco, for the purchase of scientific and mechanical works, $10,000; to the San Francisco society for the prevention of cruelty to animals, $10,000; to found an old ladies' home in San Francisco, $100,000; for the erection in San Francisco of free public baths, $150,000; for the erection of a group of bronze statuary around the city hall of San Francisco to represent the history of California, $100,000; to erect in Golden Gate park a monument to Francis Scott Key, author of *The Star Spangled Banner*, $60,000; to found and endow the California school of mechanic arts in San Francisco, $540,000. The residue of the estate, if any there shall be, will be divided between the San Francisco society of pioneers and the academy of sciences. How many of the associations named above have received in whole or in part the sums awarded them is not reported authoritatively. Of course, considerable time was required to turn the estate into cash and close the various trusts; but it is believed that sooner or later Mr. Lick's plan of beneficence will be completely executed. The observatory of the university of California will be erected on the summit of Mount Hamilton, a peak of trap-rock in Santa Clara co., 4,250 ft. above the sea, where there is nothing to obstruct the view within a radius of 100 miles. The point is nearer to the equator than any of the grand observatories of Europe or America. See LICK OBSERVATORY, in *Supp.*

LICKING, a co. in central Ohio, drained by Licking river and its branches; 670 sq. m.; pop. '80, 40,451. The surface is level or rolling, and the soil rich and well cultivated. Its products are various and extensive, live stock, grain, and wool being the principal. The chief manufactures are carriages, leather, lumber, and saddlery. The Ohio canal, and the Sandusky, Mansfield, and Newark, and the Pittsburg, Cincinnati, and St. Louis railroads pass through the county. Capital, Newark.

LICKING RIVER rises in the mountains of Floyd co., Ky., flows n.w. 180 m. and empties into the Ohio opposite Cincinnati. At high water small steamboats can ascend

a distance of 60 m. to Falmouth. Another river of the same name, near the center of Ohio, empties into the Muskingum opposite Zanesville.

LICK OBSERVATORY. See page 899.

LICORICE (*glycyrrhiza*), a genus of perennial herbaceous plants of the natural order *leguminosæ*, sub-order *papilionaceæ;* having long, pliant, sweet roots, and generally creeping root-stocks; pinnate leaves of many leaflets, and terminating in an odd one; flowers in spikes, racemes, or heads; a 5-cleft, 2-lipped calyx, and a 2-leaved keel. The ancient Greek name, now the botanical name, signifies *sweet root*, and from it, by corruption, licorice and other modern names are derived. The roots of licorice depend for their valuable properties on a substance called *glycyrrhizine*, allied to sugar, yellow, transparent, uncrystallizable, soluble both in water and alcohol, and forming compounds both with acids and bases. They are a well-known article of materia medica, and were used by the ancients as in modern times, being emollient, demulcent, very useful in catarrh and irritations of the mucous membrane.—The roots of the COMMON LICORICE (*G. glabra*) are chiefly in use in Europe. The plant has stems 3 to 4 ft. high, and racemes of whitish violet-colored flowers. It is a native of the south of Europe and of many parts of Asia, as far as China. It is cultivated in many countries of Europe, chiefly in Spain, and to some extent in the south of England, where its cultivation is at least as old as the times of Elizabeth. The roots are extensively employed by porter-brewers. They are not imported into Britain in considerable quantity, but the black inspissated extract of them (*black sugar* or *stick licorice*) is largely imported from the s. of Europe, in rolls or *sticks*, packed in bay-leaves, or in boxes of about two cwts., into which it has been run. Licorice is propagated by slips; and after a plantation has been made, almost three years must elapse before the roots can be digged up for use. The whole roots are then taken up. Licorice requires a deep, rich, loose soil, well trenched and manured; the roots penetrating to the depth of more than a yard, and straight tap-roots being most esteemed. The old stems are cleared off at the end of each season, and the root-stocks so cut away as to prevent overgrowth above ground next year. The plant is propagated by cuttings of the root-stocks.—The roots of the PRICKLY LICORICE (*G. echinata*) are used in the same way, chiefly in Italy and Sicily, Russia, and the east. The only American species is *G. lepidota*, which grows in the plains of the Missouri.

LICTORS (according to Aulus Gellius, from *ligare*, to bind, because the lictors had to bind the hands and feet of criminals before punishing them) were, among the Romans, the official attendants of magistrates of the highest rank. They carried the *fasces* (q.v.) before the magistrates, clearing the way, and enforcing the use of the appropriate marks of respect. It was their duty to execute the punishments ordered by the magistrates, such as scourging with rods and beheading. They were originally free men of the plebeian order, and not till the time of Tacitus could the office be held by freedmen. Slaves were never appointed lictors.

LIDDELL, HENRY GEORGE, D.D., b. England, 1811; graduated at Christchurch, Oxford, 1833, with high honors; was head-master of Westminster school for a time; and in 1862 was chaplain extraordinary to the queen. He was appointed dean of Christ church in 1855, and vice-chancellor in 1870. He wrote a *History of Rome from the Earliest Times to the Establishment of the Empire.*

LIDDON, HENRY PARRY, D.D., b. England, 1830; graduated at Christchurch, Oxford, in 1850; was vice-principal of the theological college, Cuddesdon, from 1854 to 1859; became prebendary in Salisbury cathedral in 1864, and in 1870 was installed canon resident of St. Paul's, London, and appointed professor of exegesis at Oxford. He was appointed Bampton lecturer in 1866. He holds with the strict ecclesiastical party in the church of England; has a logical mind, a fervent spirit, and deep theological learning; and is regarded as unsurpassed for eloquence by any preacher in the national church. He has published a volume of *Lenten Sermons*, and his Bampton lectures on *The Divinity of Our Lord and Savior Jesus Christ* have given him a high reputation.

LIE, in point of law, is not a ground of action, unless in peculiar circumstances. If, for example, it is material and is uttered by a witness or deponent, it is the criminal offense of perjury. Sometimes, also, if a person, knowing that another will act upon his information, tell a lie, and which is believed to be true, and acted on, and damage follows, the party telling the lie may be sued for the damages. But in other cases, lying *per se* is not punishable by law, civilly or criminally.

LIEBER, FRANCIS, LL.D., 1800–72; b. at Berlin, Prussia. His parents were in moderate circumstances, but gave him excellent opportunities for study. When only 15 years old, leaving the study of medicine, Lieber enlisted for the Waterloo campaign, and at the battle of Namur was severely wounded. After Napoleon's overthrow he resumed his studies with ardor, and soon, becoming imbued with liberal political ideas, was accused of plotting against the government and imprisoned. The charges never came to trial, but on his discharge permission to re-enter the gymnasia of Berlin was refused. In 1820 he took his degree at Jena, and was at Dresden when the Greek struggle for independence excited his sympathy; an account of the part he took in that revolution is given in his *Journal in Greece* (1823). In 1822 he found his way to Rome, where he became a welcome inmate of the family of the great historian Niebuhr. With him

Lieber returned to Berlin, and was rearrested on allegations of disloyalty based on the old charges. After a short imprisonment at Köpnick, enlivened by the composition of a number of poems, he was released through the efforts of his friend Niebuhr; and, wearied by this constant persecution for opinion's sake, left his native country forever. For a short time he resided as a teacher in London, but in 1827 he embarked for the new world; where, though rejected of Berlin, he was to find in the great cities of Boston, New York, and Philadelphia, a wide and respectful hearing for his profound philosophy, and universal appreciation of his political acumen. His first work, the editing of the *Encyclopædia Americana*, was completed during his five years' residence in Boston (1827–32). The next two years were spent in Philadelphia, where he was interested in educational plans in connection with Girard college; in 1835 he removed to Columbia, S. C., where he occupied the position of professor of political economy in the South Carolina university; and here he produced his greatest works: *A Manual of Political Ethics* (1838); *Legal and Political Hermeneutics* (1839); and, perhaps most important of all, *Civil Liberty and Self-Government* (1853). In the line of investigation and reflection suggested by such titles as have just been given, Dr. Lieber stands second to none. As a writer, his diction, though at times lacking in clearness, is elaborate and often eloquent. As a publicist he was singularly free from narrowness, prejudice, or a limited perception. Such writers and jurists as Story and Kent recognized in him a kindred mind. The spirit of his work is indicated in his often-repeated axiom that every obligation has its corresponding liberty, and every privilege its accompanying duty. Dr. Lieber's appointment to the chair of political economy in Columbia college, New York, was in 1856; the dissimilarity between his ideas and those of the South, as it then was, rendering a prolonged stay in South Carolina unpleasant; and shortly after he was made professor of political science in the Columbia law school. In this position he remained until his death, Oct. 2, 1852, instructing not his pupils alone, but, by his frequent publications, the whole thinking world. In 1870 Mexico and the United States agreed upon him as the final arbitrator in matters then pending between the two countries. Among his voluminous minor writings may be noted: *Reminiscences of Niebuhr; Essays on Property and Labor; Laws of Property; Penal Laws and the Penitentiary System; Prison Discipline; The Origin and Development of the First Constituents of Civilization*, and *Great Events Described by Great Historians*. A collection of Lieber's miscellaneous writing in 2 volumes was published in 1880; the first volume containing reminiscences, addresses, and essays; the second, contributions to political science, lectures on the constitution of the United States, and other papers. Dr. Lieber contributed many articles to European and American periodicals, and was a member of several scientific and literary societies of both continents.

LIE'BER, Oscar Montgomery, 1830–62; b. Boston; son of Dr. Francis; educated as a chemist and mineralogist at the universities of Berlin and Göttingen and the school of mines at Frieburg, Saxony. He was appointed state geologist of Mississippi in 1850, and shortly afterwards wrote *The Assayer's Guide*, *The Analytical Chemist's Assistant*, and *Geology of Mississippi*, besides contributing many articles to the *Mining Magazine*. In 1854–55 he was engaged in the geological survey of Alabama, and 1856–60 held the position of mineralogical, geological, and agricultural surveyor of South Carolina. The results of his labors there appeared in four successive annual reports. In 1860 he went as geologist to Labrador with an astronomical expedition. A year later he enlisted in the confederate army, was mortally wounded at the battle of Williamsburg, and died in Richmond, Va.

LIEBHARD, Joachim. See Camerarius, *ante*.

LIEBIG, Justus von, Baron, one of the greatest chemists of the 19th c., was b. at Darmstadt, May 12, 1803. He early showed a strong predilection for natural science. He studied at Bonn and Erlangen, and afterwards in Paris, where he attracted the attention of Alexander von Humboldt by a paper on fulminic acid. This led to his appointment, in 1824, as extraordinary professor, and in 1826 as ordinary professor of chemistry at Giessen, where he labored with great activity for more than a quarter of a century, making that small university a center of attraction to students of chemistry from all parts of Germany and from foreign countries. Many honors were conferred on him. The duke of Hesse raised him to the rank of baron. In 1852 he accepted a professorship in the university of Munich, and the charge of the chemical laboratory there; and in 1860 was appointed president of the Munich academy of sciences, as the successor of Thiersch.

Liebig labored with success in all departments of chemistry, but particularly in organic chemistry, in which he made many discoveries, and did much to improve the methods of analysis. He investigated with great care the relations of organic chemistry to physiology, pathology, agriculture, etc.; and, although many of his views have been combated, and several were abandoned by the author himself, it is, nevertheless, universally admitted that his researches have greatly advanced the science of agriculture in particular. Many of his papers are contained in the *Annalen der Chemie und Pharmacie*. He published the *Wörterbuch der Chemie* (Brunsw., 1837–51) in conjunction with Poggendorff, and also a supplement to this work (1850–52), but the discoveries of more recent years are exhibited in the later volumes. He wrote the part relative to organic chemistry in the new edition of Geiger's *Handbuch der Pharmacie* (Heidelb., 1839), published

afterwards as *Die Organische Chemie in ihrer Anwendung auf Physiologie und Pathologie*, which was translated into French and English (1842). His work on *Organic Chemistry in its Application to Agriculture* (Brunsw., 1840; English translation by Dr. Lyon Playfair, 1840; and French translation by Gerhardt, 1840), and his *Chemical Letters* (Paris, 1852), all of which have gone through numerous editions, and have been translated into different languages, are among the most valuable contributions to chemical literature made in our age. He died April 18, 1873.

LIEBIG, JUSTUS VON, Baron (*ante*). Soon after becoming professor of chemistry at Giessen, Liebig established an analytical laboratory, and it was this that constituted the great attraction which drew pupils from all parts of the world. Among the English students of practical chemistry were profs. Playfair, Gregory, and Johnston; and Americans were too numerous for impartial mention. Profs. Hofmann, Will, and Fresenius were his assistants. In 1832, in connection with prof. Geiger of Heidelberg, he established the *Annalen der Pharmacie*, to which he was a contributor till near his death in 1873. At a meeting of the British association for the advancement of science in 1838 he was requested to draw up a paper on isomeric bodies, and another on organic chemistry. It was in response to this that his work entitled *Organische Chemie in ihrer Aufwendung auf Agricultur* was dedicated to the British association. It was translated into English from the manuscript by prof. Lyon Playfair in 1840 under the title *Chemistry in its Application to Agriculture and Physiology*. It was also published at Brunswick in the same year in the original German under the above title. A French translation by Gerhardt also appeared. Soon afterwards was published his *Chemische Briefe*, which had a wide circulation in England and America under the title, *Familiar Letters on Chemistry and its Relations to Commerce, Physiology, and Agriculture*. These letters created great interest in Europe and America, and were the cause of the foundation of many chemical schools in colleges and universities. His second report in 1842 to the British association, entitled *Die Thier-chemie oder Organische Chemie in ihrer Anwendung auf Physiologie und Pathologie*, and translated from the manuscript by prof. Gregory under the title, *Animal Chemistry, or Chemistry in its application to Physiology and Pathology*, was the means of calling general scientific attention to the subject of food and diet, and of renewing the study of therapeutics. Many papers from Liebig appeared in the *Annalen der Pharmacie*, which afterwards were collected in two works, one published at Leipsic in 1847, the other at Brunswick in 1848. They were translated by prof. Gregory under the titles, *Researches on the Chemistry of Food* and the *Motions of the Juices in the Animal Body*. With Poggendorff, Liebig compiled the *Hand-Wörterbuch der Chemie* in 9 vols. (Brunsw., 1837–64). He also wrote the organic chemistry in *Turner's Elements of Chemistry*. In 1848, in connection with prof. Kopp, he commenced the publication of an annual report on the progress of chemistry, which has been continued till the present time. In 1855 he published *Grundsätze der Agricultur Chemie;* in 1856 *Theorie und Praxis der Landwirthschaft*, and in 1859 *Naturwissenschaftliche Briefe über die Moderne Landwirthschaft;* all of which have been translated into several languages. He gave great attention to the subject of fermentation, and was for many years the great authority upon the subject. He regarded fermentation as the result of the action of a peculiar body whose molecules are in a state of change; producing on the fermenting body a catalytic action; and that it was not caused by the abstraction of some of its constituents by growing germs—the theory which has since supplanted his. (See FERMENTATION, *ante*, and YEAST.) He was for a long time engaged in controversies upon the subject, his last paper being published in 1870, in which he maintains his theory with remarkable skill. Liebig's style was both terse and elegant, flowing naturally from a clear and strong intellect, and his capacity for severe and continued work was rare. He took much interest in America, probably in consequence of the many gifted Americans who became his pupils in the laboratory at Giessen; and it has been said that he sometimes entertained thoughts of coming to the United States to reside and pursue his chemical investigations. He was made a baron in 1845 by Louis II., grand duke of Hesse-Darmstadt. His collected works were published at Leipsic and at Heidelberg, in 1874.

LIECHTENSTEIN, an independent principality, the smallest in the former German confederation, has an area of only 60 sq.m., with a pop. of '80, 9,124. Liechtenstein is a mountainous district, lying on the upper Rhine, between Switzerland and the Tyrol, the latter bounding it to the n. and e., while the Rhine forms its western, and the canton of the Grisons its southern boundary. It is divided into the districts of Vadutz and Schellenberg, and the principal town is Liechtenstein (pop. 1000), formerly known as Vadutz. The products are wheat, flax, and good wines and fruit. Considerable numbers of cattle are raised. Liechtenstein, with several other small states, formed the 15th member of the German confederation, but in the *Plenum*, or full council of the diet, it had a separate vote. It furnished a contingent of 70 men to the federal army. The prince of Liechtenstein, whose family is one of the most ancient and illustrious of central Europe, possesses extensive mediatized principalities in Austria, Prussia, and Saxony, which together extend over nearly 2,200 sq.m., with a pop. of more than 600,000, and yield their proprietor an annual revenue of 1,400,000 florins. The government of Liechtenstein is administered by the aid of a chamber of representatives, who meet

annually to hold a diet, but whose acts are under the control of a council of state, which has its seat at Vienna, where the prince usually resides. The revenue of Liechtenstein is 50,000 to 60,000 florins. Now, it is not formally united with the German empire, but joins in the customs-union of Austria; and it has no army.

LIEGE (so called in French, but by the Germans *Lüttich*, and by the Flemings *Luyk*) is the most easterly province of Belgium: Area, 1106 sq.m.; pop. '80, 672,240. The southern province is hilly, rocky, healthy, and much covered with wood, in some places yielding, however, great quantities of coal and iron; but the part called the *Herveland* (north of the Weeze) is extraordinary fertile and well cultivated, and has also splendid pasturage for cattle. The valley of the Weeze is very beautiful, and exhibits an endless diversity of scenery. The railway from Aix-la-Chapelle to Liege, which passes through this valley, has had immense difficulties to overcome in the nature of the ground, and is consequently regarded as a *chef-d'œuvre* of the kind. Nearly a sixth of the whole road had to be artificially constructed. The inhabitants are Walloons.

LIEGE, capital of the province of the same name, is situated on the Meuse, immediately below its confluence with the Ourthe, in a magnificent plain. A hill rises on each side of the city, one of which is occupied by the citadel. The river which divides Liege into two parts, the old and the new town, is crossed by 17 bridges. Liege is said to be the most picturesque city in Belgium. Many of the public buildings are fine, especially the churches, of which the principal are the church of St. James (founded 1014; finished 1538), the cathedral (finished 1557), the church of St. Martin's, the church of the Holy Cross (consecrated 979), and St. Barthelemy (which has five naves). The palace of justice, with its paintings and 60 rooms—formerly the residence of the episcopal princes of Liege—and the university, noted for its mining-school, also deserve mention. The general interior of the city, however, is by no means pleasant; everything is blackened by the smoke of the coal-pits, which have been worked for 300 years; the streets are narrow, the houses high, badly aired, and uncleanly. The manufacture of arms is the great staple of industry. Everywhere the hammer is heard; countless forges flash out their sudden sparks; and whole streets are red with the reflection of fires. All kinds of steam-machinery, locomotives, steamboats, etc., are made here for Germany. In the immediate neighborhood are important zinc foundries. Liege is connected by railways with Brussels, Antwerp, Namur, etc. Pop. in '73, 113,774; in '80, 126,233.

Liege became the seat of a bishop in the 8th c., and continued to be so until 1794; and its bishops were reckoned among the princes of the German empire; but as it early acquired considerable magnitude and importance, its inhabitants maintained a struggle for their own independence against their bishops, in which frequent appeals were made to arms. During the wars of Louis XIV., it was several times taken and retaken.

LIEGE POUSTIE. See DEATH-BED.

LIEGNITZ, a t. of Prussia, in the government of Silesia, at the confluence of the Schwarzwasser and the Katzbach, 40 m. w.n.w. of Breslau. It has numerous educational and benevolent institutions, art-collections, and industrial museums. Cloth, leather, and tobacco are largely manufactured, and vegetables are extensively cultivated in the gardens of the suburbs. This town was, from 1164 to 1675, the residence of the dukes of Liegnitz. Here, in 1813, Blücher defeated the French. Pop. '80, 37,157, of whom about one-fifth are Catholics.

LIEN, in English and Irish law, means the security or hold over goods or land for a debt which is due. A right of lien is the right to retain goods of a third party which are in the creditor's hands, until a debt due by such party to the creditor is paid. Possession is in general essential to constitute a lien, for the moment the goods are voluntarily parted with the lien is gone. Liens are general or particular. Thus, an attorney has a general lien over his client's papers and title-deeds till the amount of his bill of costs is paid. So have bankers, dyers, calico-printers, factors. A particular lien is a lien over goods, for a debt contracted in respect of such goods, as for the price of them, or some labor expended on them. Thus, a miller has a lien on the flour he has ground, a trainer on the horse he has trained, etc. There are also maritime liens and equitable liens, which do not require possession to constitute the right. In Scotland lien is generally called detention of hypothec (see HYPOTHEC).

LIEN (*ante*). Another division of liens is into liens by common law and liens by usage. The former occur in the ordinary contracts of bailment; the latter arise by an established general usage of trade, or special usage of the parties, and are for the most part general liens. A lien may be created by express agreement, but without such agreement the common law gives a lien to certain classes of persons; thus, persons to whom property has been pawned, common-carriers, innkeepers, etc., have a particular lien. An equitable lien is one recognized by courts of equity alone. Such liens are in the nature of a constructive trust, as the lien of a vendor of real estate for unpaid purchase money, or of the vendee of real estate who has paid part of the purchase money; but these liens are not recognized everywhere in the United States. The person claiming such a lien must not have accepted any other security, such as the note of a third person. Maritime liens differ from common law liens in that they do not rest upon possession. The owner of a ship has a lien on the cargo for his freight, the shipper has a lien

upon the ship to the amount of the goods shipped by him, a seaman has a lien upon both ship and freight for his wages, etc. A master of a vessel has a lien, by statute, in England, for his wages and for sums paid out by him, but in the United States he has no lien upon the vessel for his wages, but a lien upon the freight for his disbursements. In the United States an important class of liens has been created by statute. These are called mechanics' liens, and give to men who labor, or who furnish labor or material for the erection or repair of buildings, a lien upon such buildings, from the time they begin to labor or to furnish labor or materials. This class of liens is irrespective of possession. Another statutory lien is a judgment lien upon real property against which judgment has been rendered. Liens, as a rule, are enforced by a sale of the property upon petition to the proper court.

LIERRE, a t. of Belgium, in the province of Antwerp, 10 m. s.e. of the city of that name, at the confluence of the Great and Little Nethe. Lierre has noted breweries; extensive manufactures of linen, silk, lace, and musical instruments are carried on, and there are several sugar-refineries and oil-mills. Pop. '76, 16,103.

LIEUTENANT (Fr. from Lat. *locum-tenens*, holding the place of another), a term applied to a variety of offices of a representative kind. Thus, in military matters, a *lieutenant-general* personates with each division of an army the general-in-chief. A *lieutenant-colonel* (q.v.) commands a battalion for a colonel in the latter's absence. But the title lieutenant, without qualification, denotes the second officer and deputy, or *locum-tenens*, of the captain in each company of cavalry or infantry. A lieutenant in the British foot-guards ranks as captain in the army, and exchanges with a captain in another regiment. —*Captain-lieutenant*, an obsolete rank, was the subaltern who commanded the "colonel's company" in each regiment.—A *second-lieutenant* is the junior subaltern of a company, and corresponds to what formerly was an ensign (q.v.). The pay of a lieutenant varies from 10s. 4d. a day in the life-guards to 6s. 6d. in the line.

In the British navy lieutenant is a misnomer in the case of the officer bearing that title. His functions in all respects correspond to those of a captain in the army, with whom he ranks, and with whom he also nearly matches in regard to pay. A lieutenant's full pay is 10s. a day; and his half-pay ranges, according to length of services, from 4s. to 7s. a day. Six years' service afloat are requisite to qualify an officer for the rank of lieutenant, and the candidate has also to pass a satisfactory examination in seamanship and general professional knowledge. As leaders in all minor enterprises, such as boat expeditions, cutting out, etc., lieutenants in war time carry off most of the laurels awarded to actions of singular personal daring.

LIEUTENANT (*ante*). In the U. S. army and marine service, the rank next following that of captain, and of which there are two grades, first and second lieutenant, the latter being the lowest commissioned officer. These grades rank with those of master and ensign in the U. S. navy.

LIEUTENANT, LORD-, OF A COUNTY, a permanent provincial governor appointed by the sovereign by patent under the great seal. The office, in England, arose from the occasional commissions of array issued by the crown in times of danger or disturbance, requiring experienced persons to muster the inhabitants of the counties to which the commissioners were sent, and set them in military order. The right of the crown to issue such commissions was denied by the long parliament, this question proving the immediate cause of the breach between Charles I. and his subjects. Their legality was established at the restoration by a declaratory act. The lord-lieutenant is now the permanent local representative of the crown, who, on the occasion of an invasion or rebellion, has power to raise the militia, form regiments, troops, and companies, and give commissions to officers. The history of the office seems to have been somewhat similar in Scotland. In act 1438 c. 3, the "lieutenant" is commanded to "raise the county" whenever it may be necessary to bring the rebellious and unruly possessors of castles and fortalices into subjection; and though his powers were executive rather than judicial, he seems sometimes to have had authority to exercise the functions of the sheriff, or overrule his decisions. The lord-lieutenant of a county is at the head of the magistracy, the militia, and the yeomanry; he nominates officers of militia and volunteers, and is the chief executive authority, forming the settled channel of communication between the government and the magistracy, and considered as responsible in cases of emergency for the preservation of public tranquillity. Under him are permanent deputy-lieutenants appointed by him.

LIEUTENANT, LORD-, OF IRELAND, the viceroy or deputy of the sovereign to whom the government of Ireland is committed. The office has existed from a remote period, the appointment having been made under different designations. His powers were in early times very extensive, almost regal. For the last half century following the revolution the lord-lieutenant resided little in Ireland, visiting it only once in two years to hold the session of parliament. Some lords-lieutenant never went to Ireland at all, and occasionally, instead of a viceroy, lords-justices (see JUSTICES, LORDS-) were appointed.

The lord-lieutenant is appointed under the great seal of the United Kingdom, and bears the sword of state as the symbol of his viceregal office. He has the assistance of a privy-council of 58 members, appointed by the sovereign, and of officers of state. He

is commissioned to keep the peace and the laws and customs of Ireland, and to see that justice is impartially administered. He has the control of the police, and may issue orders to the general commanding the troops for the support of the civil authority, the protection of the public, the defense of the kingdom, and the suppression of insurrection. He may confer knighthood, and, previous to its disestablishment, had the disposal of church preferment, as well as all the other patronage of the country. The granting of money, and lands, and pensions, of all titles of honor except simple knighthood, the appointment of privy-councilors, judges, law officers, and governors of forts, and the appointment to military commissions, are reserved to the sovereign, acting, however, on the lord-lieutenant's advice and recommendation. No complaint of injustice or oppression in Ireland will be entertained by the sovereign until first made to the lord-lieutenant, who is in no case required to execute the royal instructions in a matter of which he may disapprove until he can communicate with the sovereign and receive further orders. Yet, notwithstanding the dignity and responsibility of his office, the lord-lieutenant acts in every matter of importance under the direct control of the cabinet of Great Britain. The views and opinions of the cabinet on all the more important questions connected with his government are communicated to him by the home secretary, who is held responsible for the government of Ireland, and with whom it is the duty of the lord-lieutenant to be in close correspondence; on mattors of revenue he must be in constant communication with the treasury. On his occasional or temporary absence from Ireland, lords-justices are appointed, who are usually the lord primate, the lord chancellor, and the commander of the forces. His salary is £20,000, with a residence in Dublin castle as well as one in Phœnix Park. His tenure of office depends on that of the ministry, of which he is a member. . By act 10 Geo. IV. c. 7, a Roman Catholic is ineligible for the lieutenancy of Ireland.

LIEUTENANT-COLONEL, in the British army, is nominally the second officer in a regiment; but virtually a lieutenant-colonel commands every battalion of infantry and regiment of cavalry, the post of colonel being merely an honorable sinecure, with usually £1000 a year attached, awarded to a general officer. The lieutenant-colonel is responsible for the discipline of his battalion, the comfort of his men, and ultimately for every detail connected with their organization. He is aided by the major and adjutant. In the artillery and engineers, where the rank of colonel is a substantive rank, with tangible regimental duties, the functions of lieutenant-colonel are more limited, one having charge of every two batteries of artillery, or two companies of engineers. The pay of a lieutenant-colonel varies from £1 9s. 2d. per diem in the household cavalry to 17s. in the infantry of the line. Five years' regimental service as lieutenant-colonel entitles an officer to brevet rank as colonel, which, while improving his position in the army, does not, however, affect his status in his regiment.

LIEUTENANT-COLONEL (*ante*). That rank in the U. S. army next above major and next below colonel, and answering to that of commander in the navy.

LIEUTENANT-GENERAL. See GENERAL OFFICER.

LIEUTENANT-GENERAL (*ante*). In the U. S. army, the rank next beneath that of general; the latter, under the president, being commander-in-chief. It was first authorized by congress in 1798 and bestowed upon gen. Washington in view of the then anticipated war with France. After Washington's death the rank remained in abeyance until 1855, when it was revived (in brevet) by congress for gen. Winfield Scott, at whose death it again lapsed. In 1864 it was again revived by special act, and conferred on gen. U. S. Grant, on whose promotion by the creation of the grade of general in his behalf maj.gen. William T. Sherman became lieutenant-general; and, on his succession to the rank of general, maj.gen. Philip H. Sheridan was promoted to be lieutenant-general, and still (1885) holds that rank.

LIEVEN, DOROTHEA, Princess of, 1785–1857; b. Riga; daughter of Christoph von Benkendorff, an Esthonian of the middle class; was brilliantly educated, and when quite young was married to prince Christoph Lieven, Russian ambassador at the court of Prussia. Established in Berlin, she displayed remarkable diplomatic aptitude, while gaining an important social position through the exercise of fascinating personal qualities. Her correspondence became very extensive, and she soon enjoyed a continental reputation. On her husband's appointment to the court of St. James in 1812, she simply changed the immediate field of her influence and speediily established herself in a firm position in political and fashionable society in London. In 1834 the prince became governor of the czarovitch, Alexander II., and was greatly assisted in his important functions by the comprehensive capacity of his wife. In 1837 the princess removed her residence to Paris, and two years later her husband died in Rome, after which period she resided permanently in the French capital. Here she was universally sought after by the most important personages in diplomacy, and her saloon was the center of schemes and intrigues, having for their subjects the interests of half of Europe. She began to fail in health early in 1857, but retained her faculties to the last.

LIFE. In seeking a definition of life, it is difficult to find one that does not include more than is necessary, or exclude something that should be taken in. Richerand's definition of life, that it is "a collection of phenomena which succeed each other during

a limited time in an organized body," is equally applicable to the decay which goes on after death. According to De Blainville, "life is the twofold internal movement of composition and decomposition, at once general and continuous." As Mr. Herbert Spencer in his *Principles of Biology* well observes, this conception is in some respects too narrow, and in other respects too wide. Thus, it excludes those nervous and muscular functions which form the most conspicuous and distinctive classes of vital phenomena, while it equally applies to the processes going on in a living body and in a galvanic battery. Mr. Spencer (in 1852) proposed to define life as the "co-ordination of actions," but, as he observes, "like the others, this definition includes too much, for it may be said of the solar system, with its regularly recurring movements and its self-balancing perturbations, that it also exhibits co-ordination of actions." His present and amended conception of life is: "The definite combination of heterogeneous changes, both simultaneous and successive, in correspondence with external co-existences and sequences." One of the latest definitions of life is that which has been suggested by Mr. G. H. Lewes: "Life is a series of definite and successive changes, both of structure and composition, which take place within an individual without destroying its identity." This is, perhaps, as good a definition as has yet been given; but no one of those we have quoted is more than approximately true, and a perfect definition of life seems to be an impossibility.

LIFE. See Biology.

LIFE, Mean Duration of. By this term is meant the average length of life enjoyed by a given number of persons of the same age. Suppose we look at the Northampton table of mortality, we find that, of 3,635 persons aged 40, 3,559 reach 41, 3,482 reach 42, and so on, the whole failing at ninety-six. The average age, then, attained by the 3,635 persons being ascertained on these data would be the mean duration of life after the age of forty has been reached. Suppose, then, that a be the given number alive at a given age by a given mortality table, and b the number alive at the end of the first year, c the number alive at the end of the second, and so on; then there die at the end of the first year, $a-b$; and assuming that those who have died have, on an average, lived half a year, the aggregate length of life enjoyed by those who have died during the first year will be $\frac{1}{2}(a-b)$ years; then b being still alive, the a persons have enjoyed, at the end of the first year, $\frac{1}{2}(a-b)+b=\frac{1}{2}(a+b)$ years. In the second year, the a persons enjoy $\frac{1}{2}(b+c)$; in the third, the c persons enjoy $\frac{1}{2}(c+d)$ years; and so on. Summing these, and dividing by the original number of lives, so as to ascertain the average, gives $\frac{1}{2}+\frac{b+c+d}{a}$; hence the rule: Add the numbers alive at each age above that given, divide by the number alive at the given age, and add half a year. The mean duration of life at a given age is often called the "expectation of life;" but this is clearly a wrong term to use. Of 1000 lives at twenty, suppose 500 to reach forty-five; then a man aged twenty has an equal chance of reaching forty-five, and twenty-five years would be his expectation of life. But it clearly does not follow that taking the 500 who have not reached twenty-five, along with the 500 who have survived it, we should find, on extinction of the whole, that the mean duration was twenty-five years. It might be either greater or less. The term "expectation of life," as generally applied by assurance companies to denote mean duration, is, therefore, a wrong one. In connection with this subject, see Mortality; also Man.

LIFE-ASSURANCE. See Insurance.

SUPPLEMENT TO VOLUME VIII.

*An * indicates that the article to which it is prefixed is continued from the main work.*

*INFINITE. However far our explorations of the creation may be extended, we perceive that we have reached no end. Not only is no end reached; but the farther we go the more vast, complicated, multiplied, and connected together into a universe, are things seen to be. With every increase in our means of observation this perception of the unending vastness of the universe has been expanded; with every future increase we must believe that the expansion of the perception will go on. This belief, as many profound thinkers consider, is intuitive to the mind. The mind can never go beyond the finite in its effort to fill up the perception; but it always knows there is a boundless extent to be filled up. This intuitive belief of the human mind in an infinite of which it knows that it can form only a finite image is a proof of the existence of an Infinite being. For the intuitive belief is an effect produced by the Creator of man. He therefore must be greater than his work. "He that formed the eye shall he not see? He that teacheth man knowledge shall he not know?" In like manner we may ask: He that maketh man to reach after the infinite must he not himself be Infinite? Another class of thinkers, while hesitating to claim the perception of the infinite as a direct intuition in the mind, assert that it arises in the mind by an inevitable process from the perception of the finite.

INGALLS, JOHN JAMES, LL.D.: b. Middleton, Mass., 1833: graduated at Williams coll., 1855; admitted to the bar, 1857; removed to Kansas, 1858; was a delegate to the Wyandotte constitutional convention, 1859. He was sec. of the state senate, 1861, and a state senator, 1862; was maj. lieut.-col. and judge advocate of the Kansas vols. in the war, 1863–65. He was elected as a repub. to U. S. senate from Kan., 1873; re-elected. 1879.

*INHERITANCE: property which upon the death of its owner descends to his heirs becomes their I. This is true only of interests in real property; but hereditaments is the most broadly comprehensive term for real property, as it includes anything which may be inherited, and thus embraces some objects (as heirlooms) which are neither lands nor tenements. See HEIRS, etc.

*INSURANCE, COÖPERATIVE LIFE: a plan in which all the members of an assoc. undertake to pay a fixed sum, depending upon their age, and the amount of their insurance, on the death of each member. At fixed times during the year, each member is called upon to pay an assessment, the amount of which depends upon the number of deaths that have occurred during the period for which the assessment is made. At the time of joining the assoc. each member pays an initiation fee, and thereafter an annual fee independent of the number of deaths. Any surplus from the assessments or other sources generally goes into the reserve fund, which may be applied to make up any deficit in the assessments. The assoc. agrees only to pay each member, at death, his pro rata share of the amount collected from the living members, and upon their failure to pay, it has no vested fund from which the losses can be paid. The security of the insurance depends upon the prompt payment of the assessment by the members, and upon a certain increase in the membership; else, at the end, those who are left will have paid the expired policies and no one will be left to pay theirs.

INTERIOR, DEPARTMENT OF THE: one of the executive departments of the U. S. government having charge of the following branches of the public service: patents, pensions, the census, public documents, public lands, public surveys, mines and mining, judicial accounts, the territories, the Pacific railroads, Indian affairs, the department of agriculture and the bureau of education. Its chief is called sec. of the Interior; he is appointed by the president and confirmed by the senate, and is by custom though not by law a member of the cabinet. The secretary's office has seven divisions, each with a chief and clerk attached. Although the heads of the several bureaus have entire charge in detail of the business belonging to their offices, the sec. has the ultimate decision of almost all questions involving government action. The department was created, 1849, March 3; and the first incumbent of the office was Thomas Ewing, of Ohio, appointed by Pres. Taylor.

*INTEROCEANIC SHIP CANAL. Since the date of the main article, the Nicaragua canal scheme has been practically abandoned, but the construction of a tide-level ship canal across the Isthmus of Panama is now in progress, and it is expected that the work will be finished before the end of 1888. In 1878 the Colombian government granted to the "Civil International Interoceanic Canal Society" the exclusive privilege of constructing a canal between the two oceans, through Colombian territory, and at the same time the ports and canal were neutralized. This grant was, 1879, transferred to the "Company of the Interoceanic Canal of Panama," of which M. de Lesseps was the moving spirit. The first constitutive meeting of the latter co. was held, 1881, Jan. 31, at Paris. It was then stated that the capital necessary for the enterprise was 600,000,000 francs, one half of which would be distributed in shares of 500 francs each, leaving the balance to be covered by obligations. The canal was to follow much the same route as the Panama railroad connecting Panama City with Colon (Aspinwall), except that it was to keep closer to the bed of the Chagres river, crossing it again and again, and on the Pacific slope it was to descend the valley of the Rio Grande and be continued seaward to the island of Perico. Total length 54 m. M. de Lesseps was made pres. of the co., and a board of 24 directors was elected. In Oct. of the same year the contractors, Couvreaux and Hersent, began operations. Meanwhile the affair had given rise to grave international complications. Colombia had proposed to the European powers to join in a guarantee of the neutrality of the projected canal. The U. S., however, through the then sec. of state, Mr. Blaine, claimed that such a guarantee would be in direct contravention of its own obligation as the sole guarantor of the integrity of Colombian territory under the treaty effected with Colombia in 1866, and further that the U. S. would look upon any movement of a foreign power in the way of supplementing the guarantee as an unwarrantable intrusion into the local affairs of the American continent (see MONROE DOCTRINE). The letter containing the statements appeared in Oct.; in Nov. Mr. Blaine formally proposed to the British government the abrogation of that part of the Clayton-Bulwer treaty (drawn up, 1850, between the U. S. and Great Britain in contemplation of a proposed Nicaraguan canal) which would forbid the U. S. from fortifying the I. S. C., and holding the political control of it, in conjunction with the country in which it was situated. Lord Granville on behalf of the British government, combated the ground taken by the administration at Washington. Pending the discussion Pres. Garfield was shot, and under the administration of Pres. Arthur the subject of the abrogation of the Clayton-Bulwer treaty was suffered to drop.

INTERSTATE TRAFFIC ON RAILROADS. In recent years the increase of the western states in population, in the extent of their cultivation, and in capital seeking investment has led to extensive railroad building there. The wholesale trade, originally done at the seaboard and at a few other points in the west, was taken up at many minor western cities. The tons of freight in the U. S. carried one mile increased, 1873–82, from 4,419,000,000 to 8,852,000,000, a large part being increase in western traffic. But it soon appeared that freight charges were leaving small margin for gain to the farmers, and that the jobbers' trade suffered because the freights paid by their customers were nearly as much as though their purchases had been made at more remote markets where there were advantages which these small middlemen could not offer. General complaint arose. The railroads answered that competition on the trunk lines forced them to do long distance carriage for nearly the same rates as local carriage where there was no competition, that the cost of transportation, including handling and transfer of the goods, etc., was not in proportion to distance, while in some cases they were compelled to carry goods for the mere cost, or lose the business, as where water lines entered into the competition. It was charged against the railroads that certain firms and corporations could make special contracts, by which their goods were carried for less than was asked and required of the ordinary shipper. It was asserted that the railroads did not regulate freight rates by the real cost, but by what "the business would bear," and by the necessity of declaring dividends on the supposed, but ficticious, capital invested. Several of the state legislatures attempted a remedy, usually in the nature of an enactment to enforce the obligations of common carriers to render equal service, at equal rates, to all. But there was a difficulty in the way. By the constitution of the U. S. it is for congress to pass laws for the regulation of commerce between states. In his annual message, 1883, Dec. 3, Pres. Arthur called the attention of congress to this matter and recommended appropriate legislation. Nine bills were introduced into the house of representatives during that session and several into the senate, Mr. Reagan's in the house, and Mr. Wilson's and Mr. Cullom's in the senate attracting the most attention. At the next session Mr. Reagan's bill with several amendments was reported and debated, but before it could take the shape of a law the session ended, and the spring of 1885 found the question of interstate commerce still without regulation.

IRELAND, JOHN, D.D. : b. Ireland, 1838 ; emigrated to the U. S., 1849 : was edu-

cated in France and ordained a Rom. Cath. priest in St. Paul, Minn., 1861 ; was consecrated coadjutor to the bp. of St. Paul, 1875, and became bp. 1884. He is well known for his useful labors as an earnest advocate of temperance.

*IRON. According to the report of the iron and steel assoc., there were in the U. S., 1884, Sept. 1, 675 blast furnaces completed, and 16 being built. Their annual capacity was 9,300,000 tons of pig iron ; the larger number used bituminous coal, which of late years is increasingly employed. There were 434 rolling mills and steel works ; the number of mills making rails was 71. The annual capacity of the rolling mills in steel and iron was 7,600,000 tons. Number of Bessemer steel works, 21, with 46 converters, having an annual capacity in ingots of 2,490,000 tons. Number of open hearth steel works 35, having 58 open hearth furnaces, with a capacity of 550,000 tons. There were 41 crucible steel works. The census of 1880 gives as the number of persons employed, 140,978. The average daily wages of the skilled laborer were $2.59, of the unskilled $1.24. Next to Great Britain, the U. S. is the largest producer of iron and steel, and its consumption is greater than that of any other country. The iron industry depends largely upon railroad building, and the number of railroads lately built gave great impetus to iron and steel manufactures, which are now feeling the effects of over production or of insufficient demand. The following table, from Swank's *Iron in all Ages*, gives the production in the U. S.

Year.	Pig Iron, tons,	Rolled Iron, Nails, and Nail Plates.	Iron Rails.	Steel Rails.	Steel Ingots and other Crude Steel.
1880	4,295,414	2,332,668	493,762	968,075	1,397,015
1881	4,641,564	2,643,927	488,581	1,255,519	1,778,912
1882	5,178,122	2,493,831	227,874	1,460,920	1,945,095
1883	5,146,972	2,348,874	64,954	1,295,740	1,874,359

The value of the exports and imports was as follows :

1880,	imports	$80,443,362,	exports		$12,960,995
1881	"	61,555,077	"		15,782,202
1882	"	67,075,125	"		19,029,759
1883	"	47,506,306	"		19,025,718
1884	"	41,454,699	"		21,910,000

IRVING, Henry : assumed name of John Henry Brodribb : b. Keinton, near Glastonbury, Eng. He was carefully educated at a private school, early manifested a great fondness for amateur theatricals, and made his first appearance on the professional stage at the Sunderland theater, 1856, Sept. 29. After filling engagements in Edinburgh, Glasgow, and Manchester, he appeared at the St. James theater, London, 1866, and became noted as an impersonator of light comedy parts and, more especially, as the "heavy villian" in such roles as "Robert Macaire," "Bill Sykes," etc. But his first great success was as "Digby Grant" in the comedy of *Two Roses*, which he performed at the Vaudeville theater for 300 consecutive nights, 1870. In 1871, Nov., he was engaged by the Lyceum theater, and increased his reputation by his appearance in *The Bells*, 1871 ; *Eugene Aram*, 1873 ; and *Hamlet*, 1874. The last made a great sensation, was at first violently attacked as well as enthusiastically applauded ; but at last public opinion settled down in Mr. I's favor, and he was encouraged to assume other Shakespearean roles with almost unvarying success. In 1876 he made a tour through Scotland, Ireland, and the Provinces. The withdrawal of Mrs. Bateman from the Lyceum, 1870, gave Mr. I. entire control over the theater in which he had long been the leading attraction, and under his management it has become in all its appointments and in the class of plays produced there, the most admirable of London theaters. Mr. I. has made very successful visits to the U. S. with Miss Ellen Terry and other members of his company, 1883, and again, 1884–85. In spite of some of the most glaring mannerisms with which any great actor has been burdened, Mr. I. has fought his way to success by the force of original genius, by wide culture, scholarly training, and the charm of a winning and genial personality.

ISHPEMING : a city in Ishpeming tp., Marquette co., Mich. : on the Marquette Houghton and Ontonagon and the Chicago and Northwestern railroads ; 15 m. s. w. of Marquette. There are 6 churches, a national bank, a school-house costing $50,000, a large hotel, and various factories and furnaces, as there are rich iron mines in the vicinity, which constitute the chief support of the place. Pop. '80, 6,039.

JACKSON, Helen Fiske (Hunt) : b. Mass., 1830 ; dau. of Prof. Fiske, of Amherst coll. She was twice married ; her first husband, Mr. Hunt, died during the civil war. It was under the nom-de-plume *H. H.* (Helen Hunt) that she became famous. Among her finest poems are *October*, *Tedis*, *Burat Sleeps*, *Spinning*, *Poppies in the Wheat*, and *Resurgam*. Her poetry has placed her in the front rank of American poetesses, and was greatly admired by Emerson. She has made a name for herself as a prose writer, and has given to the scenery and life of Colorado, where she now

dwells, a lasting place in the world of art. Many have attributed to her the authorship of the Saxe Holmes stories. Her principal prose works are, *Bits of Travel*, *Bits of Talk*, *A Century of Dishonor*, and *Ramona*—the last a powerful story presenting the wrongs done to the aboriginal denizens of our country.

JACKSON, HOWELL EDMUNDS: b. Paris, Tenn., 1832: graduated at law, 1855, and practiced at Jackson, Tenn; removed to Memphis, 1859, and served twice by appointment on the supreme bench. He returned to Jackson, 1876; was elected to the state legislature on the state credit platform, 1880; and in that year was elected, as a democrat, to the U. S. senate.

JACKSON, JACOB BEESON: b. Parkersburg, W. Va., 1829: received an academical education; studied law, and became prosecuting-atty.; was a member of the state legislature, 1875–76; mayor of Parkersburg, 1879, and was elected gov. of W. Va. on the dem. ticket, 1880, serving 1881–85.

JACKSON, SHELDON, D.D.: b. Minaville, Montgomery co. N. Y.: graduated at Union coll., N. Y., 1855; and Princeton theological sem., 1858. He at once commenced his missionary labors in the western states and territories, chiefly among the Indians; organized the first Presb. missions or churches in the territories of Wyoming, Montana, Idaho, Utah, Arizona, and Alaska, and actively assisted in the erection of over 100 churches in various places in the west. In 1882 he was called by the Board of home missions to the Mission House in New York, and was made manager of the *Presbyterian Home Missionary*. He is the author of a valuable work, *Alaska and Missions on the North Pacific Coast*, 1880.

JACOB, JOHN J.: b. Hampshire co., Va., 1829: graduated at Dickinson coll. Penn., 1849; studied law; was in W. Va. legislature, 1869; was gov. of W. Va., 1870–77.

JAIL, LUDLOW STREET: a brick building in Ludlow st., New York, about 100 ft. n. of Grand st., and extending e. to Essex st. Persons arrested under process issued to the sheriff of the co. of New York, are lodged in this jail. A majority of the prisoners are usually non-resident debtors, arrested on the sworn statement of their creditors that they were about leaving the state. Delinquent members of the National Guard form another large class. Persons arrested for violating the U. S. laws are also placed in this jail, the Federal govt. paying the co. a stipulated sum per day for each prisoner. Superior accomodations are provided for those willing and able to pay for them, but this system has given rise to many abuses, which the state legislature has at various times made ineffectual efforts to reform.

JAMES. DARWIN R.: b. Williamsburg, Mass., 1834: received an academic education, and removed to New York, where he entered mercantile pursuits. He became pres. of the E. Brooklyn savings bank, and secty. of the N. Y. board of trade and transportation. He was elected as a repub. to the XLVIIIth congress.

*JAMES, HENRY Jr.: has written in addition to those previously mentioned, the following novels and sketches: *The Passionate Pilgrim*, *Roderick Hudson*, *Confidence*, *Portrait of a Lady*, *Seige of London*, *Pension Beaurepas*, *The Point of View*, *Lady Barbarina*, *Georgiana's Reasons*, *A New England Winter*, and *The Bostonians*. His dramatized *Daisy Miller*, pub., 1883, was not successful. For a careful estimate of his literary characteristics, see a sketch by W. D. Howells, in the *Century*, 1882, Nov. See NOVELS.

JAMES, THOMAS L.: b. New York, 1831: became a printer, afterwards a journalist; edited the *Madison Co. Journal* for some years; was appointed inspector of customs in the New York custom house, 1861; Dep. collector, 1869; postmaster of New York, 1872; and postmaster-gen. under Pres. Garfield, 1881.

JANS, ANNEKE: b. Holland, abt. 1595; d. 1663: came to this country with her husband Roeloff Jansen, 1630. In 1636 they obtained. jointly, a grant of 62 acres of land, now in possession of Trinity church, New York, which extends along the w. side of Broadway from Warren st. to the line of Christopher st. Her husband died, and Anneke married Everardus Bogardus, who left her a widow for the second time, 1647. In 1654, she obtained a patent of the farm in her own name, and subsequently removed to Albany and died there, leaving 8 children, 4 by each husband. For a century past, their descendants have maintained a claim to the above described property and have intermittently threatened to bring proceedings against Trinity church.

JANSSENS, FRANCIS, D.D.: b. Filburg, Holland, 1843: was educated at the seminary of Bois-le-duc, Holland, and, at the American coll., Louvain, Belgium; ordained priest in the Rom. Cath. church, 1867; was made vicar-gen. of the diocese of Richmond, Va., 1872; consecrated bp. of Natchez, Miss., 1881.

*JAPAN. No trustworthy survey has been made of Japan, but the latest estimates give it an area of 148,456 sq. m. The pop., 1883, was 36,700,118. The principal agricultural products, 1881, were: rice, 155,629,409 bush.; wheat, 62,049,940 bush. beans, 10,795,717 bush. The mineral and metal products were gold, 10,063 oz.; silver, 332,968 oz.; copper, 4,632 tons; iron, 13,528 tons; coal, 881,261 tons. The foreign commerce, carried on through the open ports of Yokohama, Kobé, Nagasaki,

Nugata, Tokio, Osaka, and Hakodate, amounted in 1883 to: imports 28,548,000 yen; exports, 36,809,000 yen; leaving a balance of trade in favor of Japan of 7,261,000 yen. (The yen is equal in value to the American trade dollar.) In 1884, the exports to the U. S. amounted to $15,098,890, and the imports from the U. S. to $3,376,434. In 1883, 1,398 merchant vessels entered the various Japanese ports. Commerce is carried on principally with the U. S., Great Britain, France, China, the East Indies, and Germany. For the year 1884, the total revenue of Japan was 75,606,059 yen, which balanced the total expenditure. The chief sources of revenue are from the land-tax, the tax on alcoholic liquors, and from the stamp duties, and customs. The public debt, 1883, amounted to 335,366,186 yen, of which 326,459,698 yen was home debt, and 8,906,488 foreign debt. In 1884, 236 m. of railway were open for traffic (a railway of 450 m. in length is being constructed); and the telegraph system extended over nearly 5000 m. There were 5,169 post-offices, 1882. The postal service is very successful, its income annually exceeding the expenditure.

During the fiscal year, 1881–2, 44.729,699 letters, 29,533,936 post cards, 18,671,570 newspapers, and 1,128,519 books, packets, etc., were carried. The government mint established at Osaka, 1870, during the ten years, 1870–80 coined bullion to the amount of 97,458,072 yen. The gold coins are in 20, 10, 5, 2 and 1 yen pieces, and the copper coins are in 2 sens, 1, 1-2, and 1-10 sens pieces. The government has signified an intention of introducing at an early period a new system of weights and measures based on the decimal system of France. In 1884 the navy consisted of 21 steamers and five sailing vessels. To these must be added two swift iron-clad cruisers lately constructed for the Japanese government in England, and another built in France. A dock-yard and arsenal are established at Yokosuka on the w. shore of Yedo bay. At this dock-yard the government constructed six of their warships. 702 officers and 4,511 men are numbered in the navy, which is recruited by voluntary enlistment, the term of service ranging from five to seven years. The foreign instructors formerly employed by the naval department have been dismissed with the exception of a staff of English instructors at the naval college. The conscription law, enacted 1872, and amended, 1879, makes all males of the age of 20 years liable to serve upon the active list of the army. Three years is the term of service. When a conscript has served this term he is transferred into the first division of the reserve for three years more, and then passes into the second division of the reserve for four years. By the same law a militia was organized, and in times of emergency every male from the age of 17 to 40 years is liable to be called into service. The active army numbered, 1883, 47,790 men. The first division of the reserve numbered 42,606, and the second div. 16,080. The auxiliary forces numbered 6,033 men; besides which there were a body of gendarmes and of police numbering together, 18,473 men. There were 1,200 students registered at the military college and school. The educational statistics of 1883 show that there were then 31,054 schools, including two universities. Of these, 22 were maintained by the central government, 28,736 by local government, and 2,296 by private individuals. The school age is fixed at from six years to fourteen, and statistics show that nearly one half of the children of eligible age attend the schools. There are now over 20 public libraries in Japan. Since the main article was written the ministry of ecclesiastical affairs has been abolished and the executive now consists of a ministry of ten departments: foreign affairs, the interior, finance, war, navy, education, public works, agriculture and commerce, justice, and the imperial house. A body called the Saryi-in, or council of state was created, 1881. It has the power of initiating and framing bills, and discussing matters transmitted by the executive departments, subject to deliberations in the senate; it also hears and decides cases relating to administration. In 1879 city and provincial assemblies were created, based on the principle of election; they have the power to fix the local rates subject to the approval of the governors and of the minister of the interior. Male citizens of 25 yrs. of age, who have resided in the district at least three years, and who pay an annual land tax of ten yen, are eligible to the assembly. The members of these assemblies are elected wholly by the people; all male citizens of 20 yrs. of age residing in the district and paying a tax of five yen have the right to vote. The local administration of the districts, which number 41, is in the hands of governors, one of whom resides in each district. Public opinion in Japan has advanced to the demand for something more than an absolute monarchy and a cabinet of ministers, and recognizes the necessity of a national legislature. In accordance with this demand the imperial decree, 1881, promised that in 1890 a national assembly should be organized, and the form of government become a constitutional monarchy. Agriculture is receiving great attention, and over one-third of the population are engaged in farming. There are several institutions for training young men in scientific agriculture, and the western labor-saving modes of farming are being rapidly accepted. Forestry laws and forestry schools are also in full operation. The system of justice has been greatly improved, though trial by jury is not yet established. The present criminal codes which have been in operation since 1882, are modifications and combinations of the French, Chinese, and Japanese laws. The old barriers between classes are being gradually broken down and there is every-

where a growing freedom of movement. Sintuism and Buddhism are still the prevailing creeds; Christianity however is rapidly gaining in influence and in numbers; there are numerous native churches, already self-supporting; and now that its greatest hindrances have disappeared the country is more and more approaching to religious freedom. Materialism is at present one of the greatest foes to Christianity among the educated classes. The late works of reference upon Japan are: *Japan*, by J. J. Rein (New York, 1884); *Gen. Outlines of Education in Japan* (Tokio, 1884); *Unbeaten Tracks in Japan*, by Isabella L. Bird (London, 1880); *The Land of Morning*, W. G. Dixon (Edinburgh, 1882); *Japan: its History, Traditions, and Religions, with the Narrative of a Visit in* 1879 (London, 1880); *Leading Men of Japan, with a Historical Summary of the Empire*, by Chas. Lanman (Boston, 1883); *The Classical Poetry of Japan*, by Chamberlain (1880); *The Loyal League* (a Japanese play, 1880); *Genji Monogatari* (the most famous Japanese romance, in an Eng. translation, 1882).

JEFFERSON: a tp. in Montgomery co., O.; including vill. of Liberty. Pop. '80, 6,096.

JEFFERSONVILLE: a tp. in Clarke co., Ind.; near Jeffersonville city, with the Ohio river on the south. Pop. '80, 13,177.

JEFFERSONVILLE: a magisterial dist., Tazewell co., Va.; incl. Jeffersonville vill. The region is mountainous, and copper, lead, and iron are found there. Pop. '80, 4,508.

JENKINS, Edward: b. Bangalore, India, 1838: was educated in Montreal, Canada, and at the univ. of Pennsylvania; was admitted to the bar at Lincoln's Inn, London, 1864, and practiced with success until 1873; was appointed Agent-gen. for Canada, 1874, and elected M.P. for Dundee. He resigned the Agent-generalship, 1876, and represented Dundee, as a Liberal, until 1880. He is an author of note; among his works are: *Ginx's Baby, Lord Bantam, The Coolie, The Devil's Chain, Fatal Days, A Paladin of Finance*, and several political essays.

JENKINS, Joseph John: b. London, 1811. He studied portrait-engraving under his father, but relinquished this to design illustrations for books. He joined the new society of painters in water colors, 1842, but resigned, 1845; was elected a member of the old water-color society, 1850. Among his works are, "Going with the Stream," and its companion picture "Going against the Stream," "Happy Times," "In Sight of Home," "A Nook on the Thames," and "Mist on the Hillside."

JEQUIRITY: a woody twining plant, indigenous to Brazil, also to India and parts of Africa. An infusion of its seeds, which occur in pods and are about the size of peas, has recently been found very useful in cases of impaired vision, and also of purulent discharges from the ear.

JERVIS, John B.: 1795–1884: b. Huntington, L.I., d. New York: eminent as a civil engineer and as the constructor of the Croton aqueduct, New York. He was chief engineer of the Schenectady and Saratoga railroad, and afterward of the Albany and Schenectady r. r.; was the inventor of the locomotive truck now used for all locomotives. He built the Chicago and Rock Island, the Michigan Southern, the Northern Indiana, and the Pittsburg Ft. Wayne and Chicago railroads, being for a time the pres. of the first-named. He was consulting engineer of the Boston water-works, and chief engineer of the Hudson river railroad. The town of Port Jervis is named after him.

JESSEL, Sir George: 1824–83; b. London: graduated at University College, 1844, and called to the bar, 1847. He represented Dover in parliament, 1868, and was appointed solicitor-general, 1871, and master of the rolls, 1873. He was the first Jew that ever sat on the English bench.

JEWETT, Sarah Orne: b. South Berwick, Me., 1849. She wrote sketches and stories in her earlier youth, and is a contributor to some of the leading magazines. She published *Deephaven* (1877), *Play Days, Stories for Children* (1878), *Old Friends and* (1879), *New Country Byways* (1881), *The Mate of the Daylight and Friends Ashore* (1883), *Country Doctor* (1884), *A Marsh Island* (1885), etc.

JINGOISM: a "slang" word in recent British politics. In 1877 England was undecided whether to interfere forcibly in the war in Bulgaria between Russia and Turkey. The Liberals, led by Gladstone, were in favor of leaving Turkey to itself, while the Conservatives under Lord Beaconsfield, the premier, were determined to protect Turkey from Russia. During the winter of 1877–8 the excitement in London became intense, and this excitement found its way into the "free and easys" and the music-halls. At one of these halls, where the fighting spirit prevailed, a new doggerel was every night sung amid wild applause, and soon began to be heard in the streets, having for a refrain:

> "We don't want to fight, but, by Jingo, if we do,
> We've got the ships, we've got the men, we've got the money too."

"Jingo" shouted with a significant emphasis was derisively cast as a nick-name at

the warlike party and was proudly accepted by them. The term—corresponding to "spread-eagleism" in America, and *chauvinisme* in France—has ever since been applied to those who are enthusiastic in spreading the imperial sway of Britain and are not averse to war for the purpose.

JIN-RIKI-SHA: a peculiar two-wheeled carriage of the Japanese, drawn by one man. Previously to 1868, there were few wheeled vehicles of any kind in Japan; and the invention of the J. was probably due to the introduction of European vehicles into the principal cities of the country. The J. is light and comfortable; and, under the guidance of a swift athlete, attains the speed of eight miles an hour. The drawer, who is usually divested of all clothing, and is beautifully tattoed, lifts the cross-bar connecting the shafts to the level of his breast, in which position he can move at a great pace with ease. The J. is decorated in the peculiarly fantastic manner of the Japanese; and some of the carriages are shaped like Chinese junks, others like birds, etc. The "brouette," invented by Dupin in Paris, in the early part of the seventeenth century, closely resembled the J., but was not in general use among the well-to-do classes who gave it the derisive epithet of "vinaigrette."

JOHNSON: a co. in Wyoming; unorganized: in 1879 name changed from Pease. Pop. '80, 637.

JOHNSON, Alvin Jewett: 1827–84; b. Wallingford, Vt. He settled in New York, 1853, and became gen. agent for C. C. Colton's Atlas, which he subsequently bought and published under the name of *Johnson's Illustrated Atlas.* He afterwards brought out a family and physical geography, *Facts for Farmers,* an *Analysis of the Bible,* and *Johnson's Encyclopædia;* most of which have had large popularity.

JOHNSON, Herrick, d.d., ll.d.: b. near Fonda, N.Y., 1832: graduated at Hamilton coll., 1857; at Auburn theol. sem., 1860. He was associated with Dr. Beman in the pastorate of the First Pres. church, Troy; held charges at Pittsburgh, Marquette, Mich., Philadelphia, and Chicago. He was prof. of sacred rhetoric and pastoral theology at Auburn theol. sem., 1880; and lecturer, and, since 1883, prof. of sacred rhetoric in the Pres. theol. sem. of the North West. He was moderator of the general assembly of the Pres. church at Springfield, Ill., 1882. He is the author of *Christianity's Challenge, Plain Talks About the Theater,* etc.

JOHNSTON: a tp. of Providence co., R.I.; including West Providence and part of Olneyville. Pop. '80, 5,765.

JOHNSTON, John W.: b. Panicello, Va., 1818: was admitted to the bar, 1839; was a member of the state senate, 1846–48; was for one year judge of the circuit court; was a democratic U. S senator from Va., 1870–83.

JONAS, Benjamin F.: b. Williamstown, Ky., 1834: settled in New Orleans, and graduated at law, 1855. He was in the rebel army as a private, and as acting adj. of artillery in the army of the Tennessee; was elected to the state senate of La., 1872; city atty. of New Orleans, 1874; re-elected, 1876; was a member of the state legislature, 1876–7; was elected, as a democrat, to the U. S. senate, serving, 1879–85.

JONES, Charles W.: b. Ireland, 1834: emigrated to the U. S., 1844, and settled at Pensacola, Fla., 1854; was admitted to the bar, 1857; was a member of the national democratic convention at Baltimore, 1872; served in the Florida legislature, 1874; was elected U. S. senator, as a conservative democrat, 1875; re-elected, 1881.

JONES, Frank: b. Barrington, N. H., 1832: removed to Portsmouth, 1849: was elected mayor, 1868, and re-elected, 1869; was elected as a democrat to the XLIVth and XLVth congresses, 1875–79. He has amassed a large estate as a brewer, and is a leading politician in his region.

JONES, John P.: b. Herefordshire, Eng., 1830. He was brought to the U. S. when an infant by his parents, who settled in Ohio. During the California excitement he went thither, and engaged in farming and mining in an inland county, which he subsequently represented in the state legislature. He was elected as a repub. U. S. senator from Nevada, 1873; re-elected 1879.

JONES, John Sparhawk, d.d.: b. Philadelphia, 1842. He graduated at the univ. of Pennsylvania, 1862, and studied theology at Princeton. He was ordained, 1870, and became pastor of the Brown Memorial Pres. church, Baltimore, Md., where he has remained, although he has received frequent calls to other fields of labor.

JONES, Joseph S.: 1809–77; b. Boston. He was an actor in early life, and was owner and manager at different times of several theaters in Boston. He graduated from the Harvard medical school, 1843, and was city physician for several years. He wrote a great number of plays; among them, *Solon Shingle, Eugene Aram, The Mask of the Huguenots, Zofara, Paul Revere,* and *The Silver Spoon.*

JONESVILLE: a magisterial dist., Lee co., Va. Pop., '80, 4,061.

JOSEFFY, Raphael: b. Pressburg, Hungary, 1852. He received a musical education, and soon distinguished himself as a pianist. He has traveled extensively in

Europe and America, and has been everywhere received as a worthy successor to Liszt. He has delicate touch, great facility of execution, and exquisite finish.

*JUDGES' CHAMBERS. This term which originated as given, *ante*, now in both England and the United States is much more expanded in its meaning. A judge is said to be at chambers whenever he transacts business outside of his regular term of court. Certain orders may be made by a judge out of court. These are known as chamber orders or judge's orders in contradistinction to orders made at court. In a well known case a judge was found enjoying a sea-bath and was persuaded to sign an order while in his bather's costume: this theoretically being at chambers.

JUDIC, ANNA DAMIENS: b. Semur, France, 1850: at an early age was employed in a dry-good store in Paris, but impelled by passion for the stage, entered the *Conservatoire*, and made her debut at the *Gymnase*, 1867, in a minor part. Her reputation was of speedy growth and was increased by a successful visit to Belgium, 1871. At the *Bouffes Parisiennes*, which she joined, 1872, she soon became the leading attraction; she has also been well received in London, Brussels, and St. Petersburg.

*JUDICIAL SEPARATION, or limited divorce: can be obtained for causes varying in the different states. In some states incompatibility of disposition of the parties has been held a sufficient ground for such a divorce. But in the older and more conservative states the policy of the English law has been substantially adopted. While the specific cases are numerous it is difficult to give a general statement of the precise acts which will be considered as furnishing a ground for judicial separation. Perhaps the most that may be said is, that such unprovoked conduct on the part of husband or wife as renders it impossible for the other to preserve the dignity of his or her position and is inconsistent with the welfare of the children of the family, especially if detrimental to health, will be good ground for such a separation. See DIVORCE.

JUDSON, EDWARD, D.D.: b. at Maulmain, British Burmah, 1844; a son of the missionary Adoniram J. He graduated in 1865 at Brown univ., and in 1868 was called to a professorship of languages in Madison univ., Hamilton, N. Y. In 1875 he was ordained to a very successful pastorate of the Baptist church at Orange, N. J., from which he withdrew after a few years to organize pastoral and other Christian work on a large scale in the lower part of New York. He is a fervid preacher and a skilful organizer and leader.

JUKES, ANDREW: an English preacher, who is known as a studious and thoughtful theological writer: author of *Principles of Prophetic Interpretation*, 1841; *The Way which some Persons call Heresy*, 1847; *Law of the Offerings in Leviticus*, 1847; *Characteristic Differenees of the Four Gospels*, 1853.

JUNGER, ÆGIDIUS, D.D.: b. at Burtscheid, Rhenish Prussia, 1833; studied at Aachen and at Louvain; was for many years a missionary Rom. Cath. priest among the Indians of the Oregon valley, and in 1879 was consecrated bp. of Nesqually, Washington territory.

JUSTIFICATION, in law; the technical expression for the defense in actions for libel or slander in which the defendant admits the making of the libel but avers that the facts stated are true. If a J. is proven it is a complete defense in a civil action, though not in a criminal action, the maximum in such case being "the greater the truth, the greater the libel." The theory of this is that the repetition of the assertion is calculated to excite the anger of the plaintiff and provoke a breach of the peace. See LIBEL.

*JUTE MANUFACTURES IN THE UNITED STATES. According to the census of 1880 there were only four establishments in the U. S. making a specialty of this manufacture. Of these three were in N. Y. and one in Del. They employed a total of 525 hands, and the value of their annual product was $696,982. But a number of establishments in other parts of the union manufacture bagging of jute, flax, and hemp, and the total value of J. M. in the U. S. is estimated at about $5,000,000. Most of the jute used for the purpose is imported. Experiments made under the auspices of the dept. of agriculture have indeed proved that jute can be successfully raised in the southern states, as for instance in S. Car., Fla., Ga., La., and Tex., wherever there is a hot damp climate, moist soil, and a sandy, clay, or alluvial mould. In several cases the yield was as large as 3,500 lbs. to the acre. But the cheapness of the foreign article, and the low rate of tariff charges (20 per cent *ad valorem*) make native competition impracticable. The name American jute has been given to a fibrous family of the mallow tribe which grows wild in Penn. and N. J. It furnishes an excellent fiber and is even thought by experts to be superior to the imported article. Rope, carpet, and paper, have been successfully made from it; and its cultivation and manufacture may in time add a new branch to our national industries.

KADESH-BARNEA: anciently on the s. confines of Syria; noted for its wells. Near it Moses brought water from a rock; there Miriam was buried, the Jews were defeated by the Amalekites, and, for their murmuring, were driven back into the desert; and thence Joshua sent spies to examine the promised land. It is located by

Dr. Robinson at 'Ain-el-Weebeh, on the route from Petra to Hebron, near the s. extremity of the plain of El Ghor (in Hebrew, 'Arabah), which stretches northwards to the shore of the Dead sea. But Dean Stanley places it at Petra, and later investigation seem to point conclusively to 'Ain Qadîs, an oasis in the desert of Tir, 45 miles w. of 'Ain-el-Weebah. The arguments in favor of this locality were first presented by Rowlands in 1842, were adopted by Bunsen, Palmer, Alford, Geikie, and many others, and have received confirmatory evidence though the Rev. H. Clay Trumbull's visit to the place in 1881. See Trumbull's *Kadesh-Barnea*, 1883. The principal Scripture references are, Gen. xiv., Deut. i. 44, Num. xiv., Num. xx.

KAIN, John Joseph, D.D.: b. Martinsburg, W. V., 1841 : educated at St. Charles' college, Ellicott city, Md., and St. Mary's seminary, Baltimore ; ordained priest in the Rom. Cath. church, 1866. For several years he had charge of churches at Harper's Ferry, W. Va., and Winchester, Va.; was consecrated bp. of Wheeling, 1875.

KALLOCH, Isaac S.: b. Rockland, Me., 1825 : was ordained as a Baptist minister ; went to Boston at the age of 27 yrs., and became pastor of the Tremont Temple Bapt. society. He attracted large congregations by the plainness and boldness of his language in the pulpit. He resigned, 1857, and established himself as a stockraiser in Lawrence, Kan.; became a zealous lay preacher, 1876, and soon afterward removed to Cal., where he threw himself into politics and was elected mayor of San Francisco by the Workingmen's party, 1879. During the canvass he was shot and badly wounded by Charles De Young, editor of the *San Francisco Chronicle*. His course has called forth strong animadversion from his denominational associates.

KALNOKY, Gustav, Count : b. Littowitz, Moravia, 1832. He entered the army when very young, and resigned with the grade of col. to enter the diplomatic service, 1879. He was sent embassador to Copenhagen, and then to St. Petersburg. Upon the death of Baron Haymerle, he was appointed minister of foreign affairs, 1881.

KANSAS : a co. in s. w. Kansas, bounded w. by Colorado ; formed, 1873 ; unorganized ; traversed by Cimarrow river : it has but little forest growth : 600 sq. m. Pop. '80, 9.

KARAHASSAN, Battle of : Aug. 30, '77, the Turkish army in Bulgaria, under Mehemet Ali Pasha, advanced from its positions at Rashgrad and Eski Djuma, along the lines of the Upper Lom river, and after a spirited engagement, drove the Russians, under Gen. Leonoff, from Karahassan and from all the ground between the Beli and Kara branches of the Lom. This affair, in which about 10,000 Turks and the same number of Russians were engaged, with a loss of about 1,000 Russians and a very slight loss to the Turks, was followed the next day by an advance from Plevna of the Turks under Osman Pasha, against the Russians at Pelisat. The object of these attacks on the opposite sides of the triangle formed by the Russian army south of the Danube was to compel the Russians to abandon their position at Shipka Pass, the apex of the triangle.

KEANE, John Joseph, D.D.: b. Donegal, Ireland, 1839 : graduated at St. Charles' coll., and St. Mary's seminary, Baltimore ; was asst. pastor of St. Patrick's Rom. Cath. church, Washington, D, C.; was consecrated bp. of Richmond, 1878.

KEARNEY : a co. in w. Kansas ; formed, 1873 ; unorganized : drained by Arkansas river; crossed by Atchison Topeka and Santa Fé railroad : 1,200 sq. m. Pop. '80, 159.

KEELY MOTOR : began to attract attention in 1874, and for several years excited wide interest. Its inventor, John W. Keely, made, and still makes, astounding claims—such as that, from a mixture of water and air made in the "generator" or "multiplicator," he obtains an elastic vapor producing an enormous pressure. The vapor is claimed to be produced mechanically without heat or chemical agents ; an analysis of it reveals nothing more than common air. After the vapor moves the piston it passes to the condenser, and is again turned to water to be used in the generator. The mixture of air and water in the "generator" under the influence of vibratory impulses, the inventor claims, produces the vapor. Various exhibitions have been given, with some remarkable features ; but the promised developments have failed to appear, and the force manifested has been thought to be produced by the use of compressed air. The invention, whatever it be, has not yet been perfected.

KEENER, John Christian, D.D.: b. Baltimore, 1819 : graduated at Wesleyan univ., Conn., 1835 ; entered the Ala. conference of the Meth. Epis. ministry, 1843 ; was a pastor in New Orleans, and editor of the *Christian Advocate*, of that city ; was elected bp. of the Meth. Epis. church South, 1870. He has been prominent in furthering Mexican missions, and is a pulpit orator of rare ability.

KEIFER, Joseph Warren : b. O., 1836 : educated at Antioch coll.; practiced law at Springfield, O.; served with distinction as a col. in the Union army ; was breveted brig.-gen. for gallantry on the battle fields of Va.; afterwards breveted maj.-gen. for meritorious services in the campaign ending in the surrender of Gen. R. E. Lee. At

the conclusion of the war he was appointed lieut.-col. of the 26th U. S. Infantry, but declined the honor. He was a member of the O. senate, 1868–9; and has been in congress as a repub. from O. since 1877. He was speaker of the XLVIIth congress.

KELLY, JAMES K.: b. Center co., Penn., 1819: graduated at Princeton coll., 1839; was admitted to the bar, 1842; went to Oregon, 1851, and was elected by the legislative assembly one of the three commissioners to prepare a code of laws for that territory, 1852; was a member of the legislative council, 1853–58; was a member of the convention that framed the constitution of Oregon, 1857; was a senator in the legislative assembly, 1860–64. He served as a democrat in the U. S. senate 1871–77.

*KELLY, JOHN: since 1880 has held no official position, but has exercised considerable influence in local and national politics. He was largely instrumental in securing the nomination of Gen. Hancock as Democratic candidate for president in 1880; but was less successful in his attempt to defeat the nomination of Grover Cleveland in 1884. During the campaign which resulted in the election of the latter a serious breach occurred between the Tammany wing of the Democratic party, of which K. was the head, and the "County Democracy," each faction nominating its own candidate for mayor of New York; and K. was accused of having neglected the national interests of the party in the ineffectual attempt to secure the election of his candidate for municipal office. The accusation was strongly repelled by him.

KEMPER, JAMES L.: b. Madison co., Va., 1824: educated at Washington coll., and Virginia military institute; served in the Mexican war; was in the Va. legislature for a number of years; was a confederate maj.-gen. in the civil war, and was seriously wounded at Gettysburg; gov. of Va., 1874–78.

KENNA, JOHN E.: b. Valcoulon, Va. (now W. Va.), 1848: fought as a private in the confederate service; was admitted to the bar at Wheeling, 1870; was elected (as a democrat) prosecuting atty. for Kanawha co., 1872: served in the XLVth, XLVIth, XLVIIth congreses, and had been elected to the XLVIIIth, when he was chosen to the U. S. senate, from W. Va., 1883.

KENT: a co. in n. w. Texas; formed 1876; unorganized and attached to Young co. for judicial purposes. Pop. '80, 92.

KETCHAM, JOHN H.: b. N. Y., 1832: was a member of the state assembly of New York, 1856–7; and of the state senate, 1860–1; served as a brig.-gen. in the Union army, and was breveted maj.-gen.; elected as a repub. from N. Y. to the XXXIXth and three succeeding congresses; commissioner of the district of Columbia, 1874–77; and was elected to the XLVth and four succeeding congresses.

KEY, DAVID M.: b. Greene co., Tenn., 1884: graduated Hiwassee coll., 1850; was admitted to the bar, 1853; served in the confederate army, 1861–65; was appointed Andrew Johnson's successor in the U. S. senate, 1875; was postmaster-gen. of the U. S. under Pres. Hayes, 1877–80, and has since been U. S. district judge in Tenn.

*KHARTOUM: cap. of the Soudan, founded by Mohammed Ali, 1820, and soon became the centre of a vast trade. It was from here that the slave traders of the Soudan fitted out their expeditions and found a market until the slave bazaars were closed by the order of the Khedive Ismail Pasha. The city is the center of the Soudan trade, which amounts to $65,000,000 annually. It has extensive bazaars, and some of the buildings, houses of merchants, are large and commodious. An extensive domestic trade is carried on in cattle, fruit, grain, and other agricultural products. Several European consuls reside here. Some years ago an Austrian Rom. Cath. mission was established in K., which included a cathedral, hospital, and other buildings, all surrounded by a high wall. The enclosure was used as a fort by the late Gen. Gordon, whose name and fate have given K. a melancholy interest.

KHAYYÁM, OMAR: b. in or near Nishapur, Persia; d. 1123. His name Khayyám, tentmaker, was probably derived from his father's trade. He early formed a close friendship with the famous statesman Nizam-ulmulk, and when the latter was raised to the rank of vizier by Sultan Alp Arslan, 1063, he bestowed an annual stipend upon K. This enabled him to devote himself to his favorite studies of mathematics and astronomy. He pub. standard treatises on algebra, on the extraction of cube roots, and the explanation of difficult definitions in Euclid, and assisted Sultan Malikshah in a thorough reform of the Persian calendar. But his scientific fame has been eclipsed by his poetical renown. His Rubayit, or Quatrains, are remarkable for artistic perfection, for the bitter energy of their attacks upon the orthodoxy of his day, for their wide sympathy with suffering humanity, and especially for the way in which his joyous celebration of the good things of this life is constantly overshadowed by the dread and horror of death. An admirable translation of the Rubayit into European verse was pub. 1879, by Edward Fitzgerald, and powerfully illustrated by Vedder.

KILLINGLY: a tp. in Windham co., Conn.: bounded w. by the Quinnebaug river; contains the prosperous vills. of Killingly and Danielsonville: traversed by the Boston Hartford and Erie railroad. Pop., '80, 6,921.

*KIN, NEXT OF: the general rules as to the distribution of personal property are the same as in England. As to the order of succession, see DESCENT: DISTRIBUSION: HEIRS: SUCCESSION.

KING: a co. in n. w. Texas; formed 1876; unorganized and attached to Young co. for judicial purposes: 900 sq. m. Pop. '80, 39.

KING, CLARENCE: b. Conn., 1843: engaged in scientific studies and pursuits, and was for several years director of the U. S. geological survey. He supplied the statistics of the production of precious metals in the U. S. for the tenth census, 1880; and besides several annual reports of geological surveys and explorations, he has published *Mountaineering in the Sierra Nevada.*

KING, JAMES M., D.D.: b. Girard, Penn., 1839: graduated at Wesleyan univ., 1862, and received the degree of D.D. from the same coll., 1877. He held a professorship of natural sciences, 1862–66.; in the latter year joined the Troy Meth. Epis. conference, and, 1874, was transferred to New York. He is prominently connected with the Evangelical Alliance and the American Bible soc., and holds a high place in the pulpit of New York, where he is (1885) pastor of the Park Ave. Meth. Epis. church.

KING, J. FLOYD: b. Ga., 1842: was educated at the univ. of Virginia; was col, of artillery in the confederate army; was appointed brig.-gen. of state troops, by Gov. McEnery, of La., in which state he held several important offices; was elected as a dem. from La. to the XLVIth and three succeeding congresses.

KINGSLEY, WILLIAM C.: 1833–85; b. Fort Covington, N. Y.; d. Brooklyn. He became a railroad contractor and civil engineer; constructed several railroads in the west, and settled in Brooklyn, 1861, where he built the water works, and entered into partnership with Abney C. Keeney. The firm became interested in the Brooklyn bridge project, 1867, and was the largest stockholder. Mr. K. was for a time gen. supt. of the bridge; was vice-pres. of the board of trustees, 1875–82, and pres. 1882–84, when he resigned. His services to this great enterprise were recognized as of high importance.

KINGS OF ORIENT, THE THREE. According to one of the most popular of mediæval legends, but quite outside of history, the magi, or "three wise men of the east," whose visit to the newly born Savior in Bethlehem is chronicled in simplicity by the evangelist Matthew, were three mighty kings (perhaps by an arbitrary interpretation of Ps. lxxii. 10) ruling over some indefinite oriental countries. Their names are given as Gaspar or Caspar, Melchior, and Balthazer. They were led to undertake the journey, not merely by the appearance of the star in the east, and the Messianic expectations which they shared with the Israelites, but also by prophesies in their own sacred writings. Having ascertained by their knowledge of astronomy that the star was different from any that they had studied, they recognized it as the star of prophecy, and with many attendants (8,000, according to the legend in the Eastern Church, of which 7,000 were left on the bank of the Euphrates) and with rich presents, they traveled over mountains and valleys until at last the star stood still over the lowly place where Jesus lay. Their faith was equal to the test of such a disappointment: they bowed down and adored the Divine Child, and presented gold as to a king, frankincense as to God, and myrrh as to a sufferer and martyr. Their homeward journey is, in one form of the legend, said to have been made in ships under the guidance of the star. They never resumed their former splendor, but gave their wealth to the poor and devoted themselves to turning men to righteousness. After 40 yrs. the apostle Thomas found them in Parthia and baptized them, and they were eventually martyred. The place of their sepulture was miraculously discovered by the empress Helena. who had their bodies taken to Constantinople, whence, early in the 4th century, they were removed to Milan. Numerous miracles were attributed to these supposed relics of the first Gentile worshippers of Christ, and they were regarded with great veneration throughout the Gentile Christian world. When Milan fell into the hands of Frederick Barbarossa, 1162, the archbishop of Cologne prevailed upon the conqueror to transfer the relics to the latter city. and for the past six centuries the shrine of the three kings has been one of the chief glories of the cathedral at Cologne. The legend has been extensively incoporated into literature and art; it has modified the details of all the numerous paintings and statues in which the "Adoration of the Magi" is represented; and has, in parts, been accepted as a fact by popular hymnologists.

KINGSTON: a tp. in Luzerne co., Penn. Pop. '80, 5,878.

KITTITAS: a co. in central Washington territory; e. of King and Pierce cos.: 3,600 sq. m. It is in a remarkably rich agricultural and grazing region; timothy, wheat, hops, and hay are raised in abundance. Gold, silver, copper, iron, and coal are found in the mountainous districts. Co. seat. Ellensburgh.

KIZEL ARVAT: a station on the line of the trans-Caspian railway in Turkestan, 144 m. e. of the Caspian sea, 44 m. w. of Sarakhs, and 144 m. w. of Herat.

KNICKERBACKER, David Buel, s. t. d.: b. 1833: graduated at Trinity coll., 1853; at General theol. sem., 1856; ordained priest in the Prot. Epis. church, 1857; was rector of Gethsemane church, Minneapolis; consecrated bp. of Ind., 1883.

KNIGHT, Edward H.: abt. 1820–83; d. Bellefontaine, Ohio. He applied himself to the study of mechanics and civil engineering, and for some years was examiner, and in charge of the classification and publications, at the U. S. patent office, Washington. He was a U. S. commissioner to the Paris exposition, 1878, and was made a chevalier of the Legion of honor. He published the *American Mechanical Dictionary*, 1874–78; and the *New Mechanical Dictionary*, 1882.

KNOX, John Jay: b. Knoxborough, N. Y.: graduated at Hamilton coll., 1849; made a study of finance, and was an early advocate of the national banking system. He was sent by Sec. McCullough to San Francisco to make an examination of the branch mint in that city. He codified the mint and coinage laws of the U. S., 1870, and succeeded in bringing about the discontinuance of the coinage of the silver dollar. He acted as asst. treasurer of the U. S. in New Orleans, and rendered valuable services to the government by his discovery of the enormous defalcation of $1,100,000 in the previous management of that office. Mr. K. was appointed deputy controller of the currency, and was elevated to the controlership under pres. Grant. As the result of his endeavors, the asst. treasurer of the U. S. has been admitted to the clearing house; and legal tender notes are received in the clearing house on an equality with coin. He was also successful in negotiating U. S. bonds to expedite the resumption of specie payments. He retired from office, 1884, to accept the presidency of the First national bank, New York.

KOCH, Robert, m.d.: b. abt. 1850: discoverer of the *contagium* of splenic fever. He held a small appointment at Wollstein, an obscure village in Germany, till 1880, when he accepted a position on the board of health of Berlin. As the chief of the Sanitary institute of Berlin, he prosecuted his studies in the *contagia* of consumption and cholera. He succeeded in cultivating the tubercle bacillus removed from the diseased lung; and produced tuberculosis in animals by inoculation. K. and his supporters claim that each disease is caused by a specific micro-organism; while other equally able physicians contend that these organisms are merely illustrative phenomena, and wholly without causative functions. In experiments upon mice and rabbits, K. discovered that the injection of diseased blood produced traumatic septicæmia only upon house-mice, finding also that the micrococci in the blood of these animals were identical in form and character with those in the blood used for injection. A certain form of bacillus was found to destroy the tissues of the organs. The subcutaneous tissues of rabbits injected with the infected fluid were covered with abscesses which eventually brought death. The matter of these abscesses, which were full of the *zooglœa* micrococci, when given in a diluted form to healthy subjects, invariably produced the disease. K. has produced erysipelas in the same way. The infectious character of consumption had been known for a long time before the birth of K.; but to him belongs the credit of discovering its specific germ. The tubercle bacilli are distinguished from others by marked characteristics; and they are said to be invariably present in the early stages of the disease. K. finds these bacteria in the sputum of those suffering from phthisical maladies, and claims that they are thus inhaled into the lung. He was the chief of the German commission in India. His government has awarded him 100,000 marks for his discovery of the microbe. See Bacillus Tubercle: Germ Theory of Disease: Microbe.

KOLBE, Adolf Wilhelm Herman; 1818–84: b. Ellichausen, Göttingen, Germany. He graduated at the univ. of Göttingen, and studied chemistry under Wöhler, 1838–42; was assistant first to Bunsen, afterwards to Sir Lyon Playfair; prof. of chemistry at the univ. of Marburg, 1851–65; and at the univ. of Leipsic from 1865 until his death. He made many original researches in the field of organic chemistry, edited the *Handwörterbuch der Chemie* and the *Journal für practische Chemie*, and published *A Manual of Organic Chemistry*, 3 vols., 1854–78; *A Short Text-book of Inorganic Chemistry*, 1877; *A Short Text-book of Organic Chemistry*, 1883; etc.

KRAPOTKINE, Prince: b. Moscow, 1842: a Russian Socialistic aristocrat, descendant from the family of Rurik. At first devoted to science, he visited Siberia for scientific research; on his return he was elected sec. of the Russian geographical soc. In 1872, on a trip to Switzerland, he joined the "International," and on his return to St. Petersburgh, became one of the leaders of the revolutionary circle; was arrested and placed in prison, from which he escaped. In 1883 he was tried at Lyons, France, for being connected with the anarchists, and involved in offences ascribed to the "International:" he was condemned to five years' imprisonment.

KRAUTBAUER, F. X., d.d.: b. Bruck, Bavaria, 1824: studied at the sem. of Ratisbon and at the univ. of Munich, and was ordained a Rom. Cath. priest, 1850. In this year he came to Rochester, N. Y., where he was pastor; was vicar-gen. of the diocese, 1858–9, and was then chaplain of Notre Dame, Milwaukee, for 16 years. He was consecrated bp. of Greenbay, Wis., 1875.

KRELING, August von: 1819–76; b. Germany: studied sculpture and painting; was appointed director of the Art industrial school at Nuremburg, 1853. He restored and decorated the old castle at Nuremburg; and the large fountain in Cincinnati, one of the finest in the world, is his work. His best known painting is "Erwin von Steinbach."

KRUELL, Gustav: wood-engraver; b. Düsseldorf, Germany, 1843. He received his art training at Düsseldorf; removed to the U. S., 1873, and has taken high rank in his department. His work appears regularly in the best illustrated books and magazines.

KUENEN, Abraham, D.D.: b. at Haarlem, Holland, 1829; of German descent. He studied at Leyden, where he was called to an adjunct professorship of theology in 1852, becoming full prof. 1855. He became well known for his extremely advanced views in Old Testament criticisms, asserting a far later than the traditional date for many of the books. Among his numerous works are: *The Religion of Israel* (1874–75), *Prophets and Prophecy in Israel* (1877), and *National Religions and Universal Religions* (1882). Though radical in his criticism (his chief department of study), he may perhaps be classed as not entirely unevangelical in his theology.

LABOR, Knights of: a secret order in the U. S., organized 1876, to sustain the rates of wages and improve the condition of manual labor by uniting the efforts of trades-unions. None are admitted but members of trades-unions, or manual laborers residing where there is no union of their trade. Its numbers are estimated at from 60,000 to 80,000. It prefers arbitration to strikes; and the fact is cited in argument that, previous to 1870, 71 per cent. of the contests between employers and employed in France were satisfactorily settled by arbitration. The anarchist tendency apparent in it at first is said to have disappeared.

LABOR AND CAPITAL. The relations between these are those of mutual dependence, and although so intimately related, their respective rights have never yet been so fixed as to avoid conflicts. Labor has always been looked upon as the weaker element in the combination, and the efforts of its friends have been aimed at placing it on, at least, an equal basis with capital. Wealth being the product of both labor and capital, they are each entitled to a part of it, and the fight has been as to which shall control the division, and allot the share of each. Labor has also claimed that capital must always furnish work, and when poverty distresses laborers unemployed, the blame is thrown upon capital. A statement of the relations between them may be made thus: the laborer has something to sell and capital wants to buy; they make their own bargain and, as long as it is kept, neither can complain. "Labor wants the most pay for the least work, and capital wants the most work for the least pay."

When the competition between laborers is strong, capital is always ready to take advantage of it, and none the less does labor take the same advantage of capital. Labor is more or less accustomed to look upon accumulations of wealth as its own achievement, and when it fails to get a good share, it deems itself wronged: this principle is at the bottom of the communism of labor. Labor without capital is idle, and capital without labor is non-productive. To strengthen the cause of labor, many expedients have been adopted: trades-unions, co-operative distribution, and co-operative productive societies, and industrial partnerships, have been tried, with varying success. The final solution of the difficulty will probably be found rather in the moral than in the political sphere, in the taming of the selfishness of capital and labor alike. See Labor.

LABOR BUREAU: a department connected with the Commission of emigration at Castle Garden, New York. It is maintained at the expense of the German and Irish emigrant societies, and is of great benefit to the many immigrants who arrive each year with no settled destinations, and ignorant of the best means of obtaining them. During 1884, employment was found for 23,687 immigrants (15,302 male, 8,385 female). The cost of transportation is usually defrayed by the employer. No charge is made by the Bureau for services either to the employer or the immigrant. The average monthly wages paid to farm-hands supplied by the bureau, 1884, was $11.00; to female servants, $9.50. The majority of immigrants coming under the protection of the bureau were Germans; of the men by far the greatest number (11,768) were employed at agricultural and common labor; N. Y., N. J., Conn., and Penn. received the majority, in the order named.

LABOUCHERE, Henry: b. London, 1831; son of John L., of Dorking, Surrey. His uncle was the late Henry Labouchere, first Lord Taunton, an "advanced" Liberal. His grandfather, Peter Cæsar L., of French ancestry, was a native of Holland, and settled in England as a banker; marrying a daughter of Sir Francis Baring. Mr. L. was educated at Eton; was in the diplomatic service 1854–64, part of the time as a member of the British legation at Washington. From 1865, July, to 1866, Apr. he was in parliament for Windsor, till he was ousted on petition. From 1867, Apr. to 1868, Dec. he sat for Middlesex. He has represented Northampton since 1880, Apr. Under

the signature "the Besieged Resident" his letters from Paris during the siege, 1870–1, to the London *Daily News* drew attention. In 1876 he established *Truth*, a society and political journal, with which he still maintains his connection. He has a versatile mind, and holds to the most advanced Republican ideas. His caustic style, not always free from personalities, has involved him in some serious difficulties.

LACKAWANNA: a co. in n.e. Pennsylvania, partially bounded on the w. by the Susquehanna river, s.e. by Lehigh river; organized 1878: traversed by Delaware Lackawanna and Western, Lackawanna and Bloomsburg, New Jersey Central, and Pennsylvania Coal Company's railroads: surface hilly, with underlying formation of Devonian and carboniferous rocks; soil productive. Large quantities of anthracite coal are exported. Pop. '80, 89,267—colored, 296. Co. seat, Scranton.

LADD, GEORGE TRUMBULL, D.D.: b. Painesville, O., 1842: graduated at Western Reserve coll., 1864, and Andover theol. sem., 1869; was pastor in Edinburg, O., 1869–71; and in Milwaukee, 1871–79; prof. of philosophy at Bowdoin coll., 1879–81: and at Yale since 1881. He has pub. *Principles of Church Polity*, 1882; *Doctrine of Sacred Scripture*, 1883; *Philosophy of Religion*, 1885; *Practical Philosophy*, 1885. His discussion of the doctrine concerning the Scriptures is an elaborate historical discussion with a thorough philosophical analysis; and the conclusions reached, though quite within evangelical lines, have caused wide debate, as changing at least the form of the standard doctrine of inspiration.

LAFARGE, JOHN: b. New York, abt. 1840. He early won much attention by his expressive and masterly handling of colors, both in water and oil, and was one of the first to undertake the manufacture of stained-glass in the U. S. His frescoes in Trinity Church, Boston, and the soldiers'-memorial window at Harvard college are among his best works. In spite of technical faults, Mr. Lafarge's work is deservedly popular by reason of its high though often subtile merits. His designs for textile fabrics, furniture, etc., are marked by richness of color and boldness of conception.

LAHRBUSH, FREDERICK, Captain: b. London; d, New York 1877, at the remarkable age of 111 years. He was engaged in the war between Austria and France, under the Duke of Brunswick; was at the battle of Busaco, under Wellington; lost his commission in the army by becoming engaged in mercantile pursuits; visited So. America 1818; was an overseer in Jamaica until 1848, when he moved to New York. His society was much sought, and he was considered an authority on old-school warfare.

LAKE: a co. in s. Oregon; formed 1875; containing the head-streams of the Klamath river, and on its w. border some high peaks of the Cascade range. The large lakes, Klamath, Abert, Goose, and Sumner are in this co. Pop. '80, 2,794—Indians, 72. Co. seat, Lakeview.

LAKE: a tp. in Cook co. Ill; directly s. of Chicago; containing the two unincorporated places, Englewood, pop. '80, 2,850; and Normalville, pop. '80, 352. Pop. of the tp. '80, 18,380.

LAKE VIEW: a tp. in Cook co., Ill.; on lake Michigan, abt. 5 m. n. of Chicago. The village of Ravenswood, within its limits, had in '80 a pop. of 485. The tp. is a very attractive suburb, and contains many elegant residences. Pop. '80, 6,565.

LALANNE, MAXIME: b. Bordeaux, France, 1827: studied art with M. J. Gigoux; painted a number of landscapes in oil; but of late years has busied himself chiefly in etching. His work is unrivalled for delicacy and elegance.

*LAMAR, LUCIUS QUINTUS CINCINNATUS: was re-elected to the U. S. from Miss., 1882, thus serving, 1877–85. During his career as a senator he drew attention by his speeches upon sectional politics, and was a vigorous opponent of the "inflation" policy. Just after the death of Charles Sumner, he delivered an eloquent eulogy upon that statesman. He was appointed by Pres. Cleveland, sec. of the interior dept., 1885. Mr. L's. ability and integrity are widely recognized.

LAMB: a co. in n. w. Texas, part of the Staked Plain: formed in 1876; unorganized, and attached to Jack co. for judicial purposes: 900 sq. m.

LAMB, MARTHA JOAN READE (maiden name, Nash): b. Mass., 1829. Her chief work is the *History of the City of New York*, the valuable result of many years of patient labor and research. She is now editor of the *Magazine of American History*.

LAMBERTVILLE: a post-town in Hunterdon co., N. J.; on Delaware river, and on the Belvidere Delaware railroad. It is 16 m. above Trenton, and contains 2 national banks, 5 churches, and various factories. Pop. '80, 4,183.

LAMY, JOHN B., D.D.: b. near Clermont, France, 1814: was educated at Clermont and at the sem. of Montferraud, where he was ordained a Rom. Cath. priest, 1838; came to the U. S., 1839, and labored for 11 years in the diocese of Cincinnati; was consecrated bp. of Santa Fé, N. M., 1850, and abp., 1875.

LANE, HENRY S.: 1811–81; b. Montgomery co., Ky.: removed to Indiana early in life, and was admitted to the bar, 1832; was elected to the state senate, 1835; was a member of congress, 1840–43; served in the Mexican war as a lieut. col. of Indiana vols. He was elected gov. of Indiana, 1861, but resigned two days after his inauguration, having been elected U. S. senator as a republican; and served, 1861–67.

LANG, ANDREW: b, in Scotland, 1844: was educated at Oxford, and was made a fellow of Merton coll. He made with S. H. Butcher, some excellent prose translations from Homer, followed by translations from other Greek poets, chiefly pastoral. His own poetical works include *XXII. and X Ballades, Ballades and Verses Vaine* (1884), *Verses à la Mode* (1885). His verse is of a light tone, often graceful in model. He has also published *Custom and Myth* (1884); and has given much attention to folk-lore and kindred topics.

LANGLADE: a co. in Wisconsin; formed (as new) from part of Oconto, 1879; in 1880, name changed to Langlade; unorganized and attached to Shawano co. for judicial purposes. Pop. '80, 685—35 Indians.

LANGTRY, EMELIE CHARLOTTE LE BRETON: b. in the island of Jersey, abt. 1853; daughter of an English clergyman: became well-known in English society by her great beauty and social charms. She made her début as an actress at Twickenham, Eng., 1881, Nov. 19, as the young widow in "A Fair Encounter." Mrs. L. made a theatrical tour through the U. S., 1882, which was financially very successful.

LANIER, SYDNEY: 1842–81: b. Macon, Ga. He graduated at Oglethorpe coll., 1860; was for a year tutor in the coll., and then served as a private in the confederate army. After the war he studied law and practiced until 1872. His health failing, he went to Texas, and finally settled in Baltimore, 1874, and was prof. of literature in the Johns Hopkins univ. He published *Tiger Lilies*, 1867; a vol. of *Poems*, 1877; *The Science of English Verse*, 1880; and several editions of old legends. He was the author of the ode written for the centennial celebration. A volume of poems edited by his wife appeared, 1881. With some peculiar limitations, he is in some respects one of the most remarkable poets of this century. His thought, intellectually subtle and morally elevated, often moves in a surprising but never unnatural blending and change; while his words have a delicate musical flow suggestive of restrained strength. Through years of struggle with unfavoring circumstances, he developed a nature singularly faithful to ethical and poetic ideas. His early death, a loss to the states of the South that claimed him as a son, will be increasingly recognized as a loss to American literature.

LANSDOWNE, HENRY CHARLES KEITH PETTY FITZMAURICE, Marquis of: 1845–83; b. England: was educated at Eton and Balliol college, Oxford. Upon the death of his father, the fourth marquis, 1866, he succeeded to the title and estates. He was a lord of the treasury, 1868–72, and then for two years was under-sec. of war. Gladstone appointed him under-sec. for India, 1880, but he disagreed with the government's Irish policy and resigned two months later. He succeeded the Marquis of Lorne as gov.-gen. of Canada, 1883.

LAPHAM, ELBRIDGE G.: b. N. Y., 1814: was employed as a civil engineer on the Mich. Southern railroad; practiced law at Canandaigua, N. Y.; was elected as a repub. from N. Y. to the XLIVth and three succeeding congresses; and was elected to the U. S. Senate, 1881, to fill the vacancy caused by the resignation of Roscoe Conkling.

LARNED, AUGUSTA: b. Rutland, New York: formerly editor of the *Revolution*, a woman's rights journal. She has written six vols. of stories collected from magazines and newspapers; has also pub. *Talks with Girls, Old Tales Retold*, and *Tales from the Norse Grandmother*. She is connected with various New York journals.

*LASKER, EDUARD: d. 1884, in New York. He was a member of the Reichstag from 1866 till his death. His desire for the unification of Germany kept him in harmony with Bismark till 1879, when he declared himself driven into the opposition by the economical policy of the government, and afterward he became a vigorous antagonist of the chancelor and an ardent advocate of free trade. He contributed articles on Prussian constitutional history to Oppenheim's *German Yearbook*. He visited the U. S., in 1883, to regain his health, and died here suddenly of heart disease while going home from a dinner given in his honor.

LATANE, JAMES ALLEN, D.D.: b. Essex co., Va., 1831: educated at the univ. of Virginia, ordained presbyter in the Prot. Epis. church, 1856; entered the Reformed Epis. church, 1874; and was consecrated bp., 1879.

LATHROP, GEORGE PARSONS: b. Sandwich Islands, 1851. Early in life he came to the U. S., where he has since resided, devoting himself to a literary career. He married Rose, Nathaniel Hawthorne's second daughter, who has made a name for herself as a magazine contributor and poetess. Among his best known works are: *An Echo of Passion, In the Distance, Newport, A Study of Hawthorne*, and *Spanish Vistas*.

LAURENTIE, PIERRE SÉBASTIEN : 1793–1876 ; b. France. He devoted his attention early in life to political economy, history, and philosophy. At the age of 21 years he was a college professor. He went to Paris, 1810, became a journalist, and founded the *Quotidienne* and other papers. Among his published works are: *Études Littéraires et Morales sur les Historiens Latins; Histoire des Ducs d' Orléans; Histoire de l' Empire Romain.*

LAVEAU, MARIE : 1783–1881 ; b. La. When young she was celebrated for her beauty. She was twice married ; first to Jacques Paris, a carpenter, 1810, and then to Capt. Christopher Glapion, 1812, who died 1850. In 1856 she became an invalid. She was famous for her medical skill, and did noble duty nursing the fever-patients, 1853 ; and spent the greater part of her life in visiting the sick, and the prisons, in New Orleans.

LAVIEILLE, EUGÉNE : b. Paris, 1820. He studied under Corot, and for some time after 1850 he formed part of the colony at Barbizon with Millet, Rosseau, and others. He appeared at the salon, 1844 ; his first great success was a picture called "Twilight." Among his other pictures are : "Ponds at Bourg, Evening," "Snow Scene, Twilight," "October Night," "A Street at Sablous," "Winter Night," "Moonlight at the Ford of Maulney." L. has been styled "the painter of the night."

*LAW. The recent advance in physical science has developed a tendency to deny the existence, or at least to disregard the agency of the intelligent Creator of the universe. Some have regarded the laws of nature as forces inherent in matter and able to produce and uphold all things. Some, admitting the existence and primary agency of a Creator, have affirmed that His agency ceases with creation, and that all things are left to the operation of natural law. But in a deeper view it is perceived that law requires a lawgiver both to establish and to maintain it. It is evident that law in itself is not a force, but merely a method or process of the action of force ; and that nature is governed, not *by* general laws but *according to* them. The distinguished physiologist, Lionel Beale, asserts that "natural law, without God's will behind it, is nothing more than a glove without a hand in it;" that "God is omnipresent in all natural forces ;" and that, "as matter cannot move itself, all force must originate outside of matter, that is from an omnipresent, infinite will." "About the motions of the planets," says Professor Young of Princeton, "there is the one single mystery—gravitation—and it is a very profound one. How it is that an atom of matter can attract another atom, however great the distance and whatever intervening substances there may be, I do not know. If I were to say what I really believe, it would be that the motions of the spheres of the material universe stand in some such relation to Him in whom all things exist—the ever-present and omnipotent God—that the motions of my body stand in to my will." The recent tendency is evident to modify the extreme claim of a few years ago for natural law as an adequate force, or as in any sense originating force.

*LAWN TENNIS. The game is now played by either two, three, or four persons. For a two-handed game, the court is 78 by 27 ft., and for a three- or four-handed, 78 by 36. In the middle of the court, and extending the entire width, the net is placed at a height of three ft. Two service lines are drawn, 27 ft. apart, 23 ft. from the net. Into the paralelograms formed by another line drawn through the middle of this space, the ball must first be served. These spaces thus divided are called the right and left courts. When two play, one is called the server, the other the striker-out. The server places one foot within the outer, or base line, upon the right hand side, and striking the ball with the racket must serve it over the net and into his opponent's right-hand court, who awaits it behind the service line, and must return it after its first bound over the net, anywhere within the server's boundaries, who strikes the hall back upon the fly or after the first bound anywhere within the striker-out's boundaries ; and so the game goes on. Should the server fail on the first trial, he can serve another ball, but a second failure scores 15 for his opponent. Should either the striker-out or the server fail to return a ball the opponent counts 15. The count runs, 15, 30, 40, and game, on the fourth score, unless both players have scored 40, when two successive scores are necessary to win. In the second game the server becomes the striker-out and vice versa. They alternate thus until one has secured six games, called a set. The three-handed and four-handed games are played in much the same manner. The partners alternate in serving, and in striking out ; the right partner takes the balls served into the right court, and the left partner those served into the left court.

LAWRENCE : a co. in s.w. Dakota, formed 1875 ; organized 1877 : situated in the Black Hills country : soil fertile ; drained by branches of Cheyenne river. Gold is the chief product. Pop. '80, 13,248. Co. seat, Deadwood.

LAWRENCE, GEORGE ALFRED : 1827–76 ; b. England. He graduated at Balliol col., Oxford, 1848, and was called to the bar, 1852, but soon gave up law for literature. He wrote *Guy Livingstone, Sword and Gown, Barren Honor*, etc.

LAWTON : a tp. in Hampton Co., S. Car. Pop. '80, 4,605.

LAZARUS, EMMA: b. New York, 1849: has contributed poems and miscellaneous articles to many of the leading periodicals, and published *Alide, Poems, Admetus and other Poems, Songs of a Semite,* and *Poems and Ballads translated from Heine.* Her prose style is graceful, and her thought is often keen and clear.

*LEADVILLE: no. of producing mines, 1885, about 60; no. of smelting works, 5; no. of stamp mills, 4; output for 1884, $13,000,000. The most productive mines, were, 1885, the Iron Hill group, the Carbonate Hill, Printer Boy Hill, and Yankee Hill groups. No. of organized companies, probably between 100 and 150; average capitalization, about $1,000,000. There were 3 daily and 4 weekly newspapers; real estate on principal streets was worth about 50 per cent. of its value in 1879 and 1880; receipts about $90,000 for the year ending 1885, Apl. 15; expenditures about the same; indebtedness, of co. about $800,000. The public schools (with capacity for 2,000 pupils) for some time in 1885 were closed in lack of funds; but were expected soon to re-open. Four passenger trains arrive and depart daily; there were, 1885, two banks; gas works and water works were in profitable operation. An electric light company operated 85 lights of 2,000 candle power; there were 110 street gas lamps; a telephone company had 280 subscribers.

*LEASE. A lease for years is a contract between lessor and lessee, for the possession and profits of lands and tenements, on the one hand, and a recompense by rent or other consideration, on the other (*Bacon, Abr.*) The law does not prescribe any particular form in which a lease must be made. It is sufficient that the words explain the intent of the parties, that the one divest himself of the possession and that the other come into it for a definite time. Leases may be made either by parol or deed. All leases not in writing and under seal are held to belong to the former class. Where the hiring is for one year or less no writing is required; if for a longer period, it must comply with the requirements of the Statute of frauds, which, as substantially re-enacted in the U. S., require it to be by conveyance in writing subscribed by the party creating the same, or by his lawful agent thereunto authorized in writing. By law in many states leases of agricultural lands can not be made for more than 12 years. All leases for more than one year must be recorded in the county clerk's office where the land is situated (except in some instances where another officer is designated to receive such leases), or else they will be void as to innocent third persons subsequently purchasing the premises.

It has been held that anything necessary for the use and enjoyment of the leased premises for the purposes intended by the parties must be implied when not expressed in the lease. At common law if the leased premises were destroyed by fire the tenant could be compelled to pay the rent, but this has been reversed by statute in most if not in all, of the states.

There is no warranty by the landlord that premises are fit for occupation. The tenant must use his own judgment. If, however, the lessor was guilty of fraud, as by actual misrepresentation, in making the lease, the tenant will not be bound by it. Misrepresentation may consist as well in the concealment of what is true as in the assertion of what is false, but the line is very difficult to draw under this rule as to what facts the landlord is bound to state. Unless restrained by some covenant or condition in the lease, a tenant may assign his lease to a third person or may sub-let. The distinction between an assignment of a lease and a subletting is that in the former case the original lessee disposes of his entire interest, while in the latter instance he retains some portion of the estate to himself, either territorially or in remainder. When the lease is for a term of years certain, the tenancy terminates upon the expiration of the term, and the landlord is entitled to possession. But where the tenancy is at will or by sufferance, notice is necessary, usually of one month.

LEE: a co. in central Texas; formed 1874; crossed by Yegna creek and western division of Houston and Texas Central railroad; surface hilly; soil fertile. Its forests contain cedar, oak, and pine. Pop. '80, 8,937—1,956 colored. Co. seat, Giddings.

LEE, JOHN D.: 1812–77; b. Kaskaskia, Ill. He joined the Mormons, 1837, rose to a high position in the church, and was a member of the legislature and judge of Washington co., Utah. In 1874 he was indicted for murder committed by him, 1857, as a participant in the Mountain Meadow massacre (q.v.). He was found guilty and condemned to death, 1876; and the sentence was executed, 1877. He left a statement charging that the massacre had been ordered by Brigham Young and the Mormon church.

LEESBURG: a magisterial dist., Loudoun co., Va.; traversed by the Washington and Ohio railroad. Pop. '81, 4,285.

*LEEWARD ISLANDS (ANTILLES *ante*): the name under which several of the Antilles islands which belong to Great Britain, viz., Antigua, St. Kitts, Montserrat, Nevis, Dominica, and the Virgin Islands, were formed into a single colony for the purposes of administration, 1871. The federation was placed under a governor-in-

chief, resident at St. John's, Antigua, the affairs of the various islands being administered by presidents. Each island has its local legislature which elects representatives for the general legislative council sitting in Antigua. The area is 710 sq. m. Pop. 120,501. Geographically speaking the title L. I. is a misnomer, as most of the islands in the confederation belong to the Windward group. A further element of confusion arises from the fact that the same name is given by geographers to a chain of islands in the Caribbean sea, extending westward from Trinidad and Tobago along the n. coast of South America.

LEFFERTS, MARSHALL: 1820–76; b. Brooklyn: was most of his life connected with the telegraph business, and from 1870 until his death was pres. of the Gold and Stock co. But he was best known as col. of the famous Seventh regiment of New York, to which position he was elected, 1859. On the first call for troops, 1861, he and his command at once reported for duty and started for the seat of war.

*LEGITIMATION. By the subsequent intermarriage of the mother and the reputed father of an illegitimate child, L. is possible in several but not all of the states of the Union. See BASTARD.

*LENORMANT, FRANÇOIS. His fame as a historical scholar rests on his *Manual of the Ancient History of the East*, 2 vols., London and Philada., 1869–70, translated from *Histoire Ancienne de l'Orient:* 9th ed., Paris, 1881, 3 vols. His work most fitted for an English public is the *Beginnings of History*, N. Y., 1882, 1st vol., translated from *Les Origines de l'Histoire d'après la Bible*, 2d ed., vol. I., Paris, 1880; vol. II., 1st part, 1882, and 2nd part, 1884, appeared after this translation. While not a rationalist, his views are in advance of English theological historians; still his attitude is that of Christian faith without prejudice to critical freedom, and the work is a mine of information as to all the early traditions which may be brought into comparison with the Hebrew records. His greatest critical work is the memoir on *La Propagation de l'Alphabet Phénicien dans l'Ancien Monde*, 2d ed., Paris, 1875—only Vol. I. finished. This marks an era in the history of paleography; and the value of the critical methods of this finished scholar may be judged by comparing that part of *The Alphabet* (Isaac Taylor, London, 1883, and New York, 1884), which is based on his labors, with the results, in the same book, of the divagations of Sayce and the English school of Orientalists.

LENOX: a tp. in Madison co., N. Y.; bounded n. by Oneida lake, e. by Oneida creek; intersected by the Erie canal and New York Central railroad: including the attractive vills. of Canastota and Oneida. The chief productions are hops and dairy products. Pop. '80, 10,246.

LERAY, FRANCIS XAVIER, D.D.: b. at Châteaugiron, France, 1825. When 18 years old he came to the U. S.; studied at Rennes and Baltimore, was ordained a Rom. Cath. priest, 1852, and held professorships in colleges, at Vincennes, Ind., Spring Hill, Ala., and at Baltimore. He was made bp. of Natchitoches, La., 1873, and in 1883 became abp. of New Orleans.

LESLIE: a co. in Kentucky; formed 1878. Pop. '80, 3,740–28 colored.

LESLIE, THOMAS EDWARD CLIFFE: 1837–82; b. Ireland. He was called to the English bar, but turned his attention to literature and contributed to the quarterly magazines. He was prof. of jurisprudence and political economy in Queen's coll., Belfast, for 25 years. Among his chief works are *Land Systems and Industrial Economy of Ireland, England, and Continental Countries*, 1870; and a vol. of essays upon political and normal philosphy, 1879.

LEWIS, EDMONIA: b. New York abt. 1840: Indian and African blood runs in her veins. She received little instruction in sculpture, but attracted attention by exhibiting a bust of Col. Shaw in Boston, 1865. After completing her statue "The Freedwoman," she took up her residence in Rome, Italy, 1867. Among her works are, "The Death of Cleopatra," "Asleep," "Marriage of Hiawatha," and "Madonna with the Infant Christ."

LEWIS, IDA; (Mrs. Ida Lewis Wilson): heroine of Lime Rock lighthouse in the harbor of Newport, R. I. Since 1854, she is known to have saved 13 lives, wholly by her own exertions in nearly every instance. She has received medals from the legislature of R. I., the Mass. Humane soc., and the New York Life Saving soc. In 1881, the sec. of the treasury honored her with the gold medal awarded by congress to those who risk their own lives in rescuing others.

*LIBERAL PARTY (LIBERALS): in English politics, the name assumed by the party who inherit the traditions of the old Whig party and are opposed to the Tories or Conservatives (see WHIG and TORY *ante*). The change of name resulted from the division in the Whig party, which began at the time of the French revolution. The more advanced and radical members of the party, under the leadership of Fox, were pronounced admirers of the French revolution; the more conservative, who were

headed by Burke, fell back, in dismay at its atrocities, almost into the Tory ranks. The division was less marked while the party was out of power, but with the triumph of Whig principles in the Reform bill of 1832, a triumph largely brought about by the New Whigs or Radicals, the conservative and aristocratic element in the party began to show itself in opposition to the more advanced reformers who now constituted the bulk of the party. The word Whig consequently fell into gradual disrepute with the latter, who preferred to borrow from Continental politics the term Liberal as a better designation of their principles; and the use of the new name was confirmed by the party changes involved in the carrying out of the Reform act. "Whig" is now almost a term of reproach among the Liberals, and is so applied to the timid, conservative, and aristocratic members of their party.

LIBERTY; a tp. in Trumbull co., Ohio; containing Girard and Church Hill. Pop. '80, 4,058.

LIBERTY, STATUE OF. This colossal statue was first conceived by Felix Bartholdi in 1871, while sailing through New York harbor. His idea grew in his mind, and in 1875 he submitted his design to the *Union Franco-Americaine soc.*, which was organized in France, with the idea of commemorating the century of independence in America by presenting to the people of the U. S. a gift worthy of the occasion. The design was accepted, and the soc. published a prospectus in which they said: "We desire to erect in the unequaled harbor of New York a gigantic statue on the threshold of the New World, to rise from the bosom of the waves, and represent Liberty enlightening the World." An appeal was made, to which the French people responded generously; and the cost of the work, something over $250,000 was raised mostly in small sums from nearly all parts of France. The wrist and hand, holding the torch, were exhibited at the Centennial exhibition, and were afterwards for a time placed in Madison square, N. Y. At a meeting, in New York, 1877, the citizens appointed a committee to present the undertaking to the people at large, to take steps for raising necessary funds, and to procure necessary legislation. The matter was laid before congress, which passed a resolution authorizing the president to accept the statue, and providing for its erection on Bedlow's island, and for its care and maintenance. The people of the U. S. were left to supply means for the foundation and pedestal. Meanwhile work upon the great statue went steadily on, and it was completed and formally presented to Levi P. Morton, U. S. minister to France, 1884. In 1885, May, the statue, taken apart and packed in pieces of suitable size, was embarked on the French man-of-war Isere, and arrived in New York harbor June 17. June 19, it was conveyed with imposing ceremonial from the lower harbor to Bedlow's island. (This name is usually, but incorrectly, spelled Bedloe.) The statue weighs 180 tons, and is made of bronze plates, hammered into shape, 300 in number, so arranged as to move slightly in contraction and expansion on the rivets joining them to the iron skeleton within. Each joint and rivet is isolated to prevent the generation of an electrical current by the contact of iron with the copper in the bronze. The statue is the highest in the world. The figure, measures 104 ft. 11¾ in., and to the extremity of the torch, 138 ft. Forty persons can stand within the head which is 14 ft. high; the thumb is 12 ft. in circumference, and the fore finger is eight ft. long. The foundations for the pedestal have been completed within the walls of the old fort Wood, upon Bedlow's island. An excavation, 90 ft. square, was made, which was filled up with broken trap rock and cement; and thus the largest artificial stone in the world was formed, 91 ft. square at the base, 67 ft. square at the top, 52 ft. 10 in. high. The pedestal, not yet completed, is being built of cut-stone. Its dimensions are 62 ft. square at the base, 40 ft. at the top, and 114 ft. high. It will have stairways within and balconies near the top. There will be a stairway also within the statue leading to the head, and another into the extended arm. When the statue is placed upon the pedestal the extremity of the torch will be 317 ft. above mean tide. The next highest column, the London monument, is but 202 ft. in height.

LICK OBSERVATORY: the construction on the summit of Mt. Hamilton, a prominence in the Coast range, California, has advanced rapidly under the direction of the board of trustees, so that the establishment, with the exception of the great telescope is almost completed. In accordance with the will of the giver (see LICK, JAMES), this telescope is to be the largest in the world. A contract was made with Messrs. Clark and Sons, of Cambridgeport, Mass., 1880, to furnish an objective of 36 inches clear aperture, which is six inches larger than the largest yet made. This firm entrusted the making of the flint and crown glasses to Fiel, of Paris, who experienced great difficulty in producing a crown glass of such dimensions, but lately reported that it was at length completed. The Clarks will figure the glass, and expect to have it finished by 1887. Meanwhile excavations for the dome, (seventy-six ft. in exterior diameter), which is to cover the great telescope, have been made in the solid rock of Mt. Hamilton. At some distance opposite a smaller dome has been completed which holds a 12 inch telescope. Between, stands the observatory proper, which consists principally of a corridor with a row of rooms opening out on each side. In front is a piazza; and on the back a plain of about 100 yards in extent has

been made by blasting off a peak of the mountain. Upon this a great meridian circle, made by the Repsolds, is mounted; also a transit instrument, and a photo-heliograph. The delicate and intricate machinery for placing the telescope, the tube of which will be 60 ft. long, has yet to be made. When the observatory is completed, it will, in accordance with the founder's request, be turned over to the regents of the univ. of California, who will appoint an astronomer, and put it into operation.

End of Vol. VIII.

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